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GAS JOURNAL

LIGHT ♦ HEAT ♦ POWER ♦ BYE-PRODUCTS

[Founded in 1849 as the "Journal of Gas Lighting."]

Vol. CLXIX. No. 3218.] LONDON, JANUARY 14, 1925. [77th Year. Price 1s.

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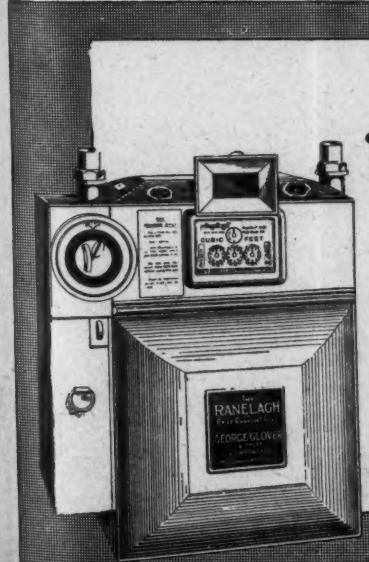

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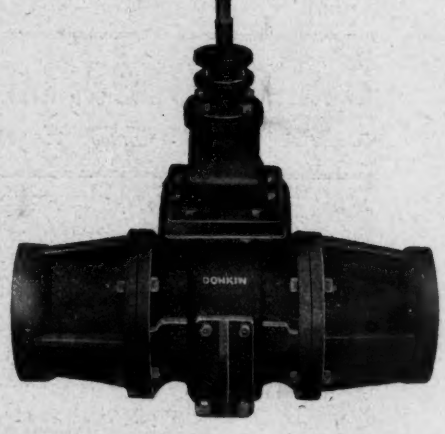

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VOL. CLXIX., No. 3218.] WEDNESDAY, JANUARY 14, 1925. [77TH YEAR.

EDITORIAL NOTES.

The Birmingham Medal.

THROUGH the minutes of the Council of the Institution of Gas Engineers, we have already announced that they have this year nominated for the distinction of being the recipient of the Birmingham Medal Dr. Charles Carpenter, C.B.E., M.Inst.C.E., the President of the South Metropolitan Gas Company. The official intimation of this decision has been circulated among the members; and, following custom, the Council have invited them to name any other persons who may be regarded as suitable for consideration in making the award. However long the list of names that might be suggested, that of Dr. Carpenter stands firmly at the head of it—simply because there is no one else with the same record of conspicuous technical service to the gas industry. We therefore hope that, on this occasion, no other name will be suggested for consideration, inasmuch as this is a case in which title to the honour has been earned and continued for many years; it would simply be bad grace on the part of anyone to suggest another name when this mark of professional recognition is so richly deserved, and should be subscribed to by every man of any grade in the professional ranks of our industry. We read the few inches of the official printed record (sent out with the intimation to the members) of the part that Dr. Carpenter has taken in serving the industry; and then our thoughts run back to days preceding even those at Vauxhall. Many years pass in the review; marked are the events and the work during their course in which Dr. Carpenter has been engaged—work carried on and consummated with scrupulous care and with definite aim. The few inches of print would swell into a volume if the tale of his work was fully told; and a feature of which prominence would have to be made in it would be that, save on occasions when duty called or necessity compelled, it has not been the man but his work—original often, progressive ever—that has come strikingly into the light of day. The one has always stood before the other. That has been characteristic. So has been the fact that the work has been of high quality and exactitude. It is this which has added weight to the evidence of Dr. Carpenter when he has been before Parliamentary or Departmental Committees, and the progress or liberty of, or fair dealing to, the industry was involved. Dr. Carpenter's friends—professional and otherwise—cannot separate him from the work and the service rendered. The new addition to the short list of names of the recipients of the distinction of the Birmingham Medal will, we are positive, have as complete ratification from the gas profession as honourable service bestows upon it.

Looking for Economies in America.

IN America the supply of natural gas is a diminishing quantity; and manufactured gas is taking up the part of the load which it cannot satisfy. But there can be little question that the latter is being consumed more economically than the former, which has been used prodigally while it has been available. As the supply further declines, no doubt there will be regrets that less lavishness in its utilization was not practised. But the changed conditions, we gather from an article published by the New England Bureau of Public Service Information, have produced new experiences and new considerations in the minds of gas engineers. In the first place, it is learned that recent atmospheric tests in Pittsburgh, carried out by the Mellon Institute, have indicated that since the reduction of the use of natural gas for heating purposes, there has been an increasing pollution of the atmosphere due to the greater consumption of bituminous coal. This raises the consideration that manufactured gas must be supplied at the lowest achievable price in order to fill the ever-widening gap that is being left by the declining supply of gas of the natural order. To cheapen manufactured gas as much as possible, it must be produced with the maximum economy, and that is the problem under discussion.

Experiences in the transportation of natural gas long distances are having an effect in the training of thought in the direction of centralizing carbonization at the coal mines, and transmitting the gas under high pressures to the populous centres. Of course, distances are regarded differently in America from what they are in this compact country of ours. The distances between the coal mines there and many important cities and towns are so great that the conveyance of coal from the pits to the local gas-works is much heavier than the cost of the coal at the mines. So it comes about (according to the article referred to) that American gas engineers are looking forward to the time when large gas-making plants will be erected at or near the mines, and the product be pumped to the areas of distribution in the same way that natural gas is transmitted from the wells. It must always be a question of the relative costs of carrying coal by rail and transferring gas from the seat of production to the distribution areas. In that respect an argument that would apply to America would probably not apply here, where the pit-head cost of gas-making coal per ton transcends the cost of carriage. The rail freights in America must be enormous if the heavy capital, maintenance, and operating charges attaching to the provision of pipe-line transmission systems can be regarded as contributing to the economy of gas supply. It is also pointed out that concentration of gas production on the large scale at the mines would release much rail rolling stock, and save the coal now consumed in hauling coal from the mines to the gas-works. Circumstances alter cases. We are not going to argue against expert views in America; and we are not sure that the article before us really represents the opinions of the leading men of the gas-engineering profession in the States. But the article categorically says that "gas engineers point out that this will make possible large economies." Let us assume that it will do so; then we can visualize a further development which is not referred to in the article. It is that if it is economical for gas production to be carried on in proximity to the coal mines, then other industries which require gas for heating and power purposes may take the hint, and come to the conclusion that it would be more economical for them to transfer their factories to the seat of the production of the gas, and so obtain supplies at a cost *minus* the transmission expenses. Industrial concentration in the common weal can be carried too far. Distribution of industry is good for all communities. Concentration must involve the industrial impoverishment, and all that this means, of some parts of the country to the advantage of other parts. It is a very big question; and so far as gas production and sale are concerned, it is not

confined to the mere consideration of the difference between the costs of transmission of the raw coal and those of the transmission of gas from plants located near the mines. We will admit that the concentration of gas-plants at the pithead is, from the practical and engineering points of view, a more feasible proposition than the concentration there of electricity generating plants, and this from the single point of view that the former does not require the enormous volume of condensation water that is needed by the latter. An economy that has developed in America, as in this country, is the utilization for town supply of the gas from coking plants; and investigation is being made in the States with a view to the greater transfer of the gaseous product from the one industry to the other.

Another economy that is under consideration is that of co-operative coal purchasing by gas undertakings. We read that recently conferences have been held between large coal producers and officials of the American Gas Association to consider an arrangement whereby contracts for coal in regular quantities could be entered into—assuring, on the one hand, that the gas industry will receive coal as needed at individual plants, and, on the other hand, that the coal mines will be able to operate on a 300-day-per-year basis—thus giving the miners steady work under satisfactory conditions, and avoiding the costly lay-offs which now seem to be a necessary feature of the mining industry, due to its inability to sell a regular output of coal at all seasons of the year. It is believed that, owing to the fairly uniform needs of the American gas industry, an agreement of the kind is possible, and that it would have an important stabilizing effect on coal mining.

These are not presented as definite developments in America in the cause of gas economy; but they are indications of the directions in which some of our friends, if not all, in the United States are looking in the expectation of bringing to bear on their operations the advantages of a higher standard of economy.

Purchase Bills in Parliament.

IN the coming session of Parliament, there will be a revival of Purchase Bills—chiefly in connection with the furtherance of the process of consolidation and manufacturing and supply facilities, which in modern times in several industries is widely accepted as the correct thing in promoting the maximum economy and efficiency, though, of course, there are limits to the realization of such benefits. The outstanding Bill of the group will be that of the Gas Light & Coke Company, which proposes to absorb the Brentford Company, and give to that concern all the advantages of the better geographical and other resources possessed by the larger undertaking. Under the operation of the sliding scale, the benefits accruing from this will be progressively of considerable advantage to the consumers in both areas of supply. The terms upon which it is proposed the transfer shall be made, tested by current dividends or stock market values, appear to us to be perfectly fair to the holders of Brentford stock; and the other provisions are on lines that in other cases have been approved by Parliament. We see little occasion either in respect of principle or terms for any opposition to the Bill, from those who keep close surveillance over the interests of the consumers in the Gas Light Company's area, or those concerned with the interests of the consumers in the Brentford district. It is not a purely financial amalgamation, but a consolidation of a diversity of resources which will react beneficially upon both the existing areas. The text of the Bill was noticed in the "JOURNAL" last week. In this week's issue, other Purchase Bills are dealt with; but they are normal in their features.

Lectures in Leeds—And Elsewhere.

WE hope as many as possible of the industry's students will take advantage of the special courses of lectures which have been arranged (as announced in the "JOURNAL" last week, p. 33) for the second term of the session in the Department of Coal Gas and Fuel Industries, with Metallurgy, at the Leeds University. It is clear that Professor Cobb is aiming at dealing, so far as time and resources will allow, with matters which are of present paramount importance in the promotion of the working and service efficiency and economy of the industry. The lectures are evening ones, which will enable more students to attend than would be the case were they earlier in the day. Prof. Cobb himself is responsible for a series of six lectures on "Furnaces and the Utilization of Fuel;" Dr. Parker for two on "Waste-Heat Boilers;" and Mr. Stephen Lacey, B.Sc., Distribution Engineer of the Gas Light and Coke Company, for six on the "Principles of Gas Distribution." There are also lectures on the "Bye-Product Coking Processes" and "Metallurgy." Information was also given in the notice last week as to the evening laboratory course, particularly directed to fuel calorimetry and pyrometry. All the subjects have current and permanent importance. Referring to them, the opportunity may be taken of mentioning a point that has long been in mind. It is whether it would be possible, as the industry's students all over the country cannot visit Leeds for the lectures, to induce the Department to extend its operations by arranging for the delivery of the lectures not only in Leeds, but in other acceptable centres, and so enlarge their value to the industry. The organization of the "extension" lectures we have not the slightest doubt could be taken in hand by the senior District Gas Associations. There may be difficulties which we do not discern; but the suggestion is made for the purpose of ascertaining whether or not a plan of the kind would be feasible.

The Arithmetic of Smokeless Agents.

MEDICAL officers of health appear to be taking more interest to-day than formerly in the use of smokeless agents for heating and cooking. This is a very good thing, so long as they keep to the straight road that leads to the objective, and do not go poking about in the by-ways and hedges in search of things mythical and invalid, and by so doing come to unsound conclusions which, if promulgated, may do serious mischief to an excellent cause. We do not place in this category a report by Dr. R. King Brown, Medical Officer of Health for Bermondsey, on the subject of the effect of the domestic coal fire on health. But the report suggests to us the need for information being circulated among medical officers as to the arithmetic of various heating agents, so that they may know better their relative economic standing. We agree with Dr. King Brown that smoke pollution is one of the most urgent problems of public health, and that it becomes increasingly important with the growth of urban areas. The problem, as he admits, is a very complicated one, especially as three-fourths of the smoke is caused by domestic chimneys, and more than three-fourths of the damage. Apparently his opinion that the damage by the domestic chimney is greater proportionately than the output of smoke is due to his belief that in industry the combustion of coal is accomplished in high-temperature furnaces, and therefore is more complete, with an absence of tar and acid products. Of course, all industrial heating is not by high-temperature combustion; and Dr. King Brown is fortunate if he has had no experience of the conditions of the atmosphere in some of our industrial towns.

The impeachment by the Doctor of the domestic fire is, however, wholly justified. With the low-temperature combustion of coal by the house fire, there is a good contribution of tar and acids to the atmosphere; and these are the chief causes of damage to buildings and lungs. When we come to the question of cure or amelioration, Dr. King Brown points out that the problem is mainly an economic one; and he holds that until a cheap smokeless fuel, equal in efficiency and price to ordinary coal, is placed on the market, there seems little chance of doing away wholly with the domestic coal fire. This is emphasized later when he says: "English people are wedded to the ordinary "open fire; and until a plentiful supply of cheap smoke-"less fuel is discovered, and put on to the market in "sufficient quantities to replace coal, I do not think there "is the slightest chance of clearing the atmosphere com-"pletely." The Doctor is no doubt right in this; but the realization of a plentiful supply of cheap smokeless fuel of the type that he has in mind appears to get more remote as time goes on. When the glowing balance-sheets of low-temperature carbonization were issued a few years

ago, they were based on the prices of secondary products then ruling; and even then investigators could not find that the solid fuel from low-temperature carbonization could be sold, and the process made a commercial success, at a price below that of household coal. The position then and now also proves how with solid fuel as the primary product, and its net cost of production relying to such a large extent upon the market values of secondary products, the cost to the public of the primary commodity would be subject to somewhat violent fluctuations, which might at times—especially when the price of coal was at its lowest level—cause the smokeless solid fuel, if loss was not to result, to require a retail price far in excess of coal. To-day the prices that tar and pitch command are poor compared with two years ago, and the market value of sulphate of ammonia is not what it was, and its future rests upon the economic limits of the production of synthetic ammonia from the atmosphere. The current balance-sheet of low-temperature carbonization will not do much to support the hope of Dr. King Brown that a "cheap" smokeless fuel will come from that particular direction.

The Doctor, however, gives gas and electricity credit for what they have done, during the last decade or two, in contributing to a noticeable diminution of the severity of fogs. He says that there is no doubt that this points the way to reform in the matter of domestic smoke; and he urges that every endeavour should be made to encourage the use of gas and electricity for cooking and heating. We are pleased to notice that gas is properly placed first in the contribution rendered to the abatement of the pollution of the air by smoke. The data as to the use of gas cooking and heating appliances have to look down from a great height upon the figures representing the use of electric heating and cooking appliances; and, moreover, if Dr. King Brown would explore the relative efficiencies of the gas and electric processes, he would see that the national welfare requires not only a purer atmosphere, but that it should be realized by the least wasteful process of utilizing the chief of our native assets. There is much that data and calculation can teach us in connection with the important question of smoke abatement; and the lessons are directive to the best and wisest advocacy.

The Domestic Coke-Boiler.

THOSE whose work lies in the direction of cultivating new business in gas should not treat coke as an intruder, but should foster its use as much as possible in the area of gas supply. We are induced to mention this because on more than one occasion it has been noticed that enthusiastic gas salesmen have spoken as though they are rather meticulously inclined as to the coke boiler, and regard it as an unwelcome competitor of the gas-heated boiler. This is not by any means a general attitude; but where it exists, it is a distinctly erroneous and mischievous one. As a matter of fact, coke is one of the best friends the gas salesman has. The greater the demand for coke, the better its price, and the higher the revenue from it, the lower the net cost of gas into the holder. The lower the net cost the stronger (through the price charged) is the position of the gas salesman in developing the uses of the primary commodity of the undertaking. The gas salesman, having regard to the potential value of new coke consumption, should do all possible to encourage it. Moreover, it must not be forgotten that the more the sales of gas are enlarged, the more the output of coke is increased; and therefore, in the interests of the price of gas, a proper balance must be maintained between output and disposal. But this is not to say that coke boilers should be recommended on each and every occasion. A proper discrimination should be made as to which is the better—a gas or coke boiler—in the circumstances of the service required. The one that is the more economical and efficient for the conditions to be met is the one which should be recommended in the interests alike of the householder and the undertaking.

In the London district, the value of the domestic coke boiler as a steady absorber of coke is revealed by the growing demand for it, specially graded for the purpose. We know that the London Coke Sales Committee have done all that is within their power to encourage the production and improvement in design of these boilers; and the whole industry should seek to encourage the manufacturers. There are already some forty makers in the field. This fact alone shows the growth of the demand for coke-boilers, although they are not universally "pushed" by gas undertakings. Having regard to the present state of the coke market, such an attitude is to be deplored. It is found that such boilers will absorb some 5 to 6 tons of coke a year; and this indicates that they can be material factors in respect of coke disposal. The advisability of gas undertakings catering for the growing requirement of coke-fired boilers was emphasized by Mr. E. L. Oughton at a recent meeting of the members of the London Area of the Southern Gas Salesmen's Circle, as reported in "THE GAS SALESMAN" for Dec. 24. The discussion on that occasion was interesting, but not completely whole-hearted in respect of a favourable attitude towards such boilers—not only for their service in the supply of hot water, but for low-temperature central heating, the ideal complement to which in rooms is the radiant heat of gas-fires. We have to look at these matters from the points of view of relative serviceability, and of developing the business in the industry simultaneously in all directions. In view of its varied composition, it is a business that requires to be studied and conducted on the basis of a proper inter-relation.

We would press home three points which were made by Mr. W. H. Becket in the discussion of Mr. Oughton's paper. The first is the real need that exists for guidance on the question of coke salesmanship. The second the necessity of supplying coke of suitable size for use in domestic boilers; and the third has a close connection with the same point. It is that, when a coke boiler is fixed, a contract should be made to supply the coke. This ensures a coke customer for the undertaking supplying the boiler, and it assures that the boiler will be fed with coke of appropriate size. The importance of the contract is obvious. The fixing of a gas boiler automatically provides a certain customer for gas. A coke boiler does not do so in the absence of a contract. There is nothing to prevent the householder purchasing from a retailer, and receiving fuel of an unsuitable size, to the detriment of his own convenience and satisfaction. That must be avoided, and can be by very simple means. Had the question of the size of coke been studied as it ought to have been in the past, together with the ash content in the coal carbonized and the moisture in the coke, the major member in our family of secondary products would not have fallen into the disrepute that it did as a domestic fuel. That some gas men are still myopic in respect of this important part of their business is clearly attested by an analysis of their product.

The 1925 Wembley.

The British Empire Exhibition, considering the character of the weather last year, was a great success in the matter of its educative and advertising mission. That is the almost universal view. But in an address to the English Speaking Union, Lieut.-General Sir Travers Clarke, Chief Administrator of the Exhibition, states that those who had charge of it had come to the conclusion that the work the exhibition aimed to do was only half done; that it had begun well in its task of education, but it had not completed it. It is intended that this year the exhibition shall be kept substantially the same as last year in its Imperial character and its educational purpose; but the experience then gained is to be used to make the spectacle brighter and better. This year there will be more gardens, more flowers, more flags, more music, more light, and more variety in the restaurants. The exhibits will be exclusively the products of the British Empire; and the amusements part is to be considerably strengthened. But it is too early for details.

More Money for Wareham.

No doubt the group of company promoters operating from 43, Cannon Street, E.C. (which address by the way is now designated "Electric House," and we are not jealous), will be glad, at the beginning of the year as at all times, of as much money as a confiding public care to entrust them with. We have seen that these people have lately been very active in trying to induce a greater flow of money into their coffers, by sending out revised editions of old appeals. It was not a great while ago that we were dealing with the financing of the Wareham

Electric Supply Company, Ltd. Now we see more money is desired; and the invitation for it is being made through the Electricity Finance and Distribution Corporation, Ltd., of which Mr. A. M. Eaton is one of the Directors. The offer is of 8 p.ct. preference shares of £1 each at £1 2s. 6d., ordinary shares at 10s. per share, and 7 p.ct. first mortgage debentures at £97 10s. per cent. We look in vain for information as to the financial outcome of the Company's operations; but found embedded towards the end of the prospectus is the information that there have been issued and paid up 9668 preference shares out of 10,000 authorized, 7643 ordinary shares out of 10,000, and the whole of the £5000 debentures. The reason that a portion of the last-named are included in this offer is that the Electricity Finance and Distribution Corporation, Ltd., have purchased or have under offer the debentures and a portion of the shares included in the present issue. Those ordinary shares are of interest. The prospectus tells us that they have a nominal value of 1s. each; and for them 10s. each is being asked! Thus any idiot who wants 2000 of these 1s. shares would pay, at the price suggested, £1000 for them! £100 of ordinary capital in the Wareham Electric Supply Company carries a premium of £900!—it is really so funny that we must decline further to examine the prospectus. But we should not like to ignore the fact that that representative of the old brigade, Sir Charles B. H. Soame, Bart., is still the Chairman of the Wareham enterprise, and Wilfred Burton and Emerton C. Buik are his associates on the Board. Burton is also on the Board of the Electricity Finance and Distribution Corporation, Ltd., in which he holds ten shares!

Company Law Amendment.

We are pleased to see that the President of the Board of Trade has appointed a Committee to consider the report as to what amendments are desirable in the Companies Acts, 1908 to 1917. It is a strong Committee, constituted of a dozen members, with Mr. Wilfrid Greene, K.C., as Chairman. One of the members is Mr. William Cash, F.C.A., who is well known in gas accountancy and administration. It would be a good thing if something could be done to strengthen the law in respect of company promotions, so as to prevent the over-capitalization of poor little undertakings to the injury of people with money to invest, but who do not know the difference between genuine investment and throwing their money into the gutter. We do not like the parasites who live by such means on the reputation of well-established industries. It is surprising that the gas industry does not roll up its sleeves, and deal with such operations in an effective manner.

Fair Dealing.

There was much common sense in an address delivered by the Right Hon. J. R. Clynes, M.P., the other day to the Yorkshire branch of the Industrial League. Among the many points made by him was that workmen, if they have to ask employers to be fair to them, must agree to be fair to each other. He urged that more opportunity should be given for advancement by ability on the part of workmen; but he omitted to mention that it is largely due to the operations of the trade unions that the difference between the rewards of competence and incompetence have been so substantially narrowed. He spoke of America—of the abundance of good trade there being due not to lower wages, but to higher production. In this relation he said that, if the workers of this country could be sure of a fair share of any greater output, he was satisfied they would see the wisdom of doing their best to secure it. That does not apply generally. The coal industry is one proof; and other examples are not unknown. Even though profit-sharing on a defined basis was applied to the coal industry, the miners, or their Federation, declined to allow conditions to be so altered that the industry, through increased production, could have been made more profitable. So we agree with the dictum that "if workmen deliberately reduce the volume of national wealth by lessening output, they are reducing their own chances of raising the standard of living." There can also be concurrence in the declaration that our principal industries should be helped by a concentration of common sense and co-operative effort on behalf of the various industries concerned. What a happier industrial world we should have if what Mr. Clynes preaches and teaches was accepted by all whose activities are involved in productive work.

Strike Menaces.

In the same paper in which Mr. Clynes' address was reported, we read an account of a speech by the Right Hon. Wilfrid Ashley, Minister of Transport. He referred to trade prospects as being distinctly hopeful; but he says there is ahead the possibility of serious industrial strife. Unfortunately this year is menaced by extensive disputes. There is a wave of application for more wages passing over the country. This involves many industries. Next June the miners' agreement will come to an end; and there are hints already of an application for higher wages and further improvement in conditions. The wages of the miners are now, per ton of disposable coal, in excess of the pit-head prices of coal before 1914. When industries are trying to recover themselves, this state of things makes the outlook gloomy. The Minister of Transport hopes that the disputes will be settled peacefully; and this all whose desires are actuated by intelligence will devoutly pray will be the result. But in any peaceful settlement, no additional burden should be placed (but we fear cannot be avoided) upon those industries which are trying to emerge from the depression from which they have suffered so long.

THE BIRMINGHAM MEDAL.

Dr. Charles Carpenter Suggested for the Distinction.

It has been resolved by the Council of the Institution of Gas Engineers to award the Birmingham Medal this year; and though in the intimation sent out to members by Mr. Walter Dunn (the Secretary) it is stated that they will be prepared to receive not later than the 24th inst. the names of any other persons who may be regarded as suitable for consideration in making this award, they are assured of the most hearty support in suggesting for the distinction Dr. Charles Carpenter, C.B.E., M.Inst.C.E., President of the South Metropolitan Gas Company, in recognition of the invaluable services he has rendered the gas industry, in so many directions during a long period of years.

It is pointed out in Mr. Dunn's letter that upon the death in 1899 of Mr. Frank Livesey, Chief Engineer of the South Metropolitan Gas Company, Dr. Carpenter was appointed to the position. His early professional work included the application to gas retorts of the Siemens method of firing. On the death of Sir George Livesey in 1908, Dr. Carpenter succeeded him as Chairman of the South Metropolitan Gas Company. He was closely associated with Lord Moulton in the production of explosives during the war. For this and other signal services he received the C.B.E. For many years Dr. Carpenter has been an indefatigable supporter of the system of co-partnership which was originated by Sir George Livesey. By the lecture on "The Purification of Gas by Heat: A Century's Progress and Its Lessons," which Dr. Carpenter delivered before the Institution at Liverpool in 1914, were communicated to the industry the results of research and practical investigation which exhibited his conspicuous ability, not only as a gas engineer, but as a chemist. He was President of the Society of Chemical Industry during the two critical years 1914-16, and mainly through his efforts was formed the Association of British Chemical Manufacturers. Dr. Carpenter was the inventor of the No. 2 "Metropolitan" argand burner, which he described in a paper read before the Institution in the year 1905. His more recent work in applied science has been in the direction of standardizing apparatus and fittings required for the use of gas, and in the manufacture and distribution of a gas of practically unvarying composition and pressure. For some years he has been a member of the Council of the Institution of Civil Engineers.

Regulation 1, in reference to the awarding of the medal, is:

"The object of the medal is to encourage the extension of the uses of coal gas. It is to be bestowed for originality in connection with the manufacture and application of gas; such qualification to be interpreted in its widest possible sense. It shall be awarded at the discretion of the Council, but at intervals of not less than two years, and may be awarded to persons of any nation."

The following are the names of those to whom the medal has been awarded since it was established:

1882.	Sir George T. Livesey.	1897.	Baron von Welsbach.
1884.	Frederick Siemens.	1905.	James W. Helps.
1886.	Charles Hunt.	1913.	Sir Corbet Woodall.
1890.	Thomas Newbigging.	1918.	John West.
1892.	Sir William H. Perkin.	1923.	W. Doig Gibb.
1894.	William A. Valon.		

PERSONAL.

The LORD MAYOR of Manchester, Ald. F. J. West, C.B.E., M.I.Mech.E., was entertained to dinner at the Midland Hotel, Manchester, on Tuesday, Jan. 6, by the officials of West's Gas Improvement Co., Ltd., and was presented with an illuminated address, a gold-mounted pocket wallet, and a gold watch suitably inscribed, as mementoes of his year of office as Chief Magistrate of the City of Manchester. At the same time he accepted (on behalf of the Lady Mayoress) a diamond scarf-pin. In the address the officials of the Company expressed their very high personal regard for the Lord Mayor, their pride in the high office to which he had been called, and their cordial wish that he would be spared for many more years of signal service to the city, to the nation, and to the gas industry.

Mr. G. C. PARNABY, who informed the President of the South Metropolitan Gas Company early in August last that he desired to retire from his position of Products Sales Manager at the end of 1924, has retired accordingly. Mr. Parnaby first started in 1876 in an office at Middlesbrough, where he was connected with the iron trade and trained as a professional accountant. In 1884 the Directors of Messrs. Sadler, Forbes, Abbott, & Co., Ltd., appointed him to a post in their London office, and on the separation of the Northern from the Southern interests in that Company, he remained with Messrs. Forbes, Abbott, and Lennard, and was appointed Secretary when that firm became a private Company. In 1903 Mr. Parnaby accepted the position he has now vacated, which was offered to him by the Directors. He represented his Company on several organizations, including the Federation of British Industries and the Association of British Chemical Manufacturers. Last year he held the office of President of the Association of Tar Distillers. Mr. Parnaby served as a Justice of the Peace for Surrey County for fourteen years. He now resides at Brick House, Margaret Roding, near Dunmow, Essex.

Mr. WALTER A. DEARDEN, late of Dunfermline, who has been appointed Engineer and Manager at Johnstone (which position Mr. James Dickson recently vacated to go to Dundee), commenced his career in the gas profession under Mr. W. B. M'Lusky, at the Halifax Corporation Gas-Works, where he received a sound training in the drawing office, laboratory, works, and district. From 1915 to 1917 he served with H.M. forces at home and in France, and then was for two years Technical Assistant in Halifax. In 1919 he was appointed Assistant Engineer and Manager to the Dunfermline Gas Department. During his period of service there, he assisted Mr. James Campbell in carrying out large extensions rendered necessary by the rapidly increasing output. These extensions included a setting of Woodall-Duckham vertical retorts, a 1¼ million c.ft. spiral holder, new exhausting and compressing plant, a waste-heat boiler, and a tar dehydration plant. In the distribution department extensive high and low pressure mains were laid, including high-pressure ones for linking-up the two neighbouring gas undertakings of Inverkeithing and Kincardine to Dunfermline. Mr. Dearden was President of the Scottish Junior Gas Association (Eastern District) in 1922-23, and since 1910 has acted as Lecturer in Gas Manufacture and Gas Supply at the Heriot Watt College, Edinburgh.

The Padiham Urban Council have appointed Mr. HARRY DEAN, Assistant Gas Manager at Todmorden, as Manager of the Padiham undertaking, in succession to Mr. Ames. Mr. Dean, who is 37 years of age, has been at Todmorden for the last 3½ years. For five years previously he was with the Birmingham Gas Department.

Mr. H. F. POTTER, who has for some years past acted as Sales Manager for Messrs. Thomas Glover & Co., Ltd., and Messrs. R. & A. Main, Ltd., in London and the South, will now act as Sales Manager for Messrs. Thomas Glover & Co. throughout the country, and will continue his duties in a similar capacity for Messrs. R. & A. Main in London, the Midlands, and the South. The Board have appointed as his assistant, Mr. A. P. MAIN, a son of the late Mr. R. B. Main, Chairman of the Company from 1912 to 1918, and nephew of Mr. A. P. Main, late Vice-Chairman, whose death was recorded twelve months ago. Mr. A. P. Main has been engaged in the service of the firm since he started his business career, at both the London and the Falkirk Works of the Company.

OBITUARY.

The death occurred on Jan. 4, at Chichester, of Mr. VICTOR VALENTINE VICK, aged 68, who for a long period has occupied the position of Secretary to the Chichester Gas Company. He was very well known and highly respected in the city.

The death took place last Sunday of Mr. WILLIAM LINDSAY, who two years ago succeeded Mr. Crichton as cashier in the Belfast Gas Office on the retirement of the latter on superannuation. Mr. Lindsay, who had been laid aside for some time by illness, had been a collector in the department for many years, and had over 44 years' association in all with the undertaking. At a special meeting of the City Council on Monday, the Lord Mayor paid a feeling tribute to his fidelity and efficiency.

ELECTRICITY SUPPLY MEMORANDA.

EVERY new year, certain of our electrical contemporaries canvass the prophets of the electrical supply and manufacturing industries for their views as to prospects. The practice has been followed this year; and we have been reading some of the resulting statements. There is found the traditional optimism; and the general view is that there is ground for cheerfulness in the industry. The prophets have spoken; and therefore there can be no mistake about it. Anyway, that is the proper view to take at the beginning of a year, though we notice that consistent as is this optimism in the electrical industry every January, no one seems to remember it in December. The President of the Institution of Electrical Engineers (Mr. W. B. Woodhouse) sees much cause for thankfulness that the progress towards an "all electrical age" has continued with so little interference; while Mr. R. B. Mitchell, of Glasgow, is of opinion that the outlook in the electrical industry was never brighter than now, and that "the age of electricity" may be said to be fairly entered upon. We pause over the expressions "the all electrical age" and "the age of electricity." We wish the users of such terms would be a little more explicit, and say what they really mean. Does, for instance, Mr. Woodhouse infer that for all applications to which electricity is applicable the time is coming when it will monopolize each field—lighting, power, cooking, and heating? If so, we fear that the President of the Institution, while a clever engineer, is not so clever in investigating relative values to ascertain whether the results justify the belief in a coming "all electrical age." Should that come about, it would be a baneful thing for the country. Try to imagine all heating and all cooking throughout the country being done by electricity generated at the low average efficiency of to-day, or even at the best efficiency known; and it will be obvious to all but electrical men that the coal resources of the country would be punished severely in the process. A more rapid shinkage of those resources would be the natural result of using coal at an efficiency lower than the efficiency realized by its treatment or utilization by other processes. We are therefore not convinced that the "all-electrical age" is near at hand. The same thing is true of lighting and power. Limits to universal use are applied in most matters by individual preferences and conditions which concern both economy and efficiency.

Let Us Be Joyful.

Developments and the Cooker.

Saying this does not imply that the electricity industry is not making certain advances—in the adoption, for example, of domestic electric heating appliances; but the gas industry is at the same time exceeding its previous records in connections for the same purposes. This is highly satisfactory; and it is the most eloquent testimony that could be had to popular preference. Mr. Woodhouse says that enterprise has given an impetus to the domestic uses of electricity which should lead to an increased demand for electrical apparatus of all kinds during this year; and to this end he urges the hearty and collective co-operation of all sections of the industry. Many electricity undertakings are straining every nerve, and are applying all the customary methods, to secure more business in this direction. Referring to the development of the domestic load as the outstanding feature of the past year, Mr. Mitchell states that contributory to this are the schemes of hire and hire-purchase of cookers, fires, and wiring, which bring the "advantages and conveniences of electricity within the reach of the householder of the most moderate means." Mr. Mitchell should ponder over his own words, as we are inclined to think he has drawn largely upon imagination. We ask him, is it a fact that people of moderate means can afford electricity for heating and cooking while they can get a larger range of service at a cheaper rate by other means? We observe that redoubtable champion of electric cookers who was recently so shy of a public competitive trial of modern gas and electric cookers that he declined to take part in one—Mr. L. L. Robinson, of Hackney—states that electric cookers are becoming more and more popular. He adds, with the exception of the hotplate modern cookers have reached a wonderful stage of perfection. But the fact is the hotplate of a gas cooker is almost constantly in use; and if an electric cooker is required to deal with the same range of service, well then it (regarded in its entirety) has not reached a wonderful stage of perfection and efficiency. Mr. Robinson confirms this by stating that while hotplates have been improved, there is "still plenty of room for further improvement." That shows a dissatisfaction which probably is not advertised in Hackney by Mr. Robinson. Mr. Hugo Hirst, the Chairman of the General Electric Company, takes a broad outlook on the world's affairs. He finds greater stability and confidence existing everywhere; and in these circumstances enterprise must be stimulated. All development outside the electrical industry must in some part assist its fortunes. The same applies to the gas industry.

The Government and Electricity.

It is extraordinary how the daily newspapers obtain inner knowledge as to the intentions of the Government in respect of the part they are willing to take in the development of electricity supply; and it is still more curious to read of the fantastic plans that are attributed to them. If all were true that is written and published on this question, then it would be proof positive that, irrespective of Party, the political mind is incapable of applying to it practical considerations, and coming to practical decisions. If we are to believe the Prime Minister's recent declaration—and there is no reason why we should not—the Government have not yet made up their minds on the subject. We saw last week what "The Times" had to say regarding the institution of a chain of companies throughout the country to generate electrical energy, without profit or loss. The beautiful absurdity was the subject of comment. The "Electrical Review" has called attention to that prediction, as well as to certain meanderings of the "Morning Post" on the question of the Government's so-called proposals. From this we see the Government are credited with having resolved upon the standardizing of frequency throughout the country on the basis of 50 cycles per second, at a cost of 10 millions sterling—the work being spread over three years. The alleged purpose is to facilitate the interconnection of the existing undertakings by "great arterial mains for the better distribution of more and cheaper power," and thus "to subordinate the service to the national interest rather than purely parochial needs." The "Review" says the phraseology is somewhat obscure, but the intention is good. The intention may be all right up to a point, but not when it comes to spending 10 millions sterling out of funds provided by the taxpayers generally. If what is proposed will be beneficial to the electricity supply industry, and to those industries patronizing it, then by all means let the beneficiaries provide the money for carrying out the work. A further statement is that while the Government would assist the standardizing process with State funds, they will not assume control; their object being "to lead and assist rather than to fetter and control." For this promise of non-intervention, the electricity industry is profoundly thankful.

Encouragement of Public Utilities.

There are assurances, too, that the Government's intentions are not tainted with socialism, but that they will encourage private enterprise to continue the extension of electricity supply on the ground that it is a public utility, and that the more extended utilization of electricity would lighten human labour and improve the conditions of life. Municipalities will also be required to assist the Government, and to abandon the petty parochial spirit; and they will have "to frame local regulations supplementing the general procedure dictated by the Government." All this is very nice and interesting. But the Government may be reminded (if there is any truth in these prognostications) that there are other deserving interests in the country which should, on the ground that they are public utilities, have encouragement as well as the electricity industry. For instance, there is the gas industry. It supplies a power agent, which is more economical than electricity for long-hour running and constant loads. Parallel with power, there is the supply of heat to industry; and the gas industry is doing a largely developing business all over the country in furnishing gas and coke for heating purposes to our manufacturers. There are the other secondary products, which are the bases of requirements of the chemical industry, the dye and textile industries, agriculture, and of other productive operations. If there is any industry above others which, in the national interests, should be encouraged by the Government, it is that which provides separately and in usable form the various valuable properties of coal. But we are content to wait until there is definite information as to the actual intentions of the Government before placing much reliance upon the predictions of the newspapers.

Flame and Smoke.

A writer in "Electrical Industries" requires a little elementary education on the subjects of flame and smoke and the process of gas manufacture. He heads a comment with the old adage, "Where there's Flame, there is Smoke." That applied to a past age; to-day it is not universally applicable. Take, for example, a bunsen flame, and the flame of any gas that is undergoing complete combustion. Does our friend suggest smoke would be found? He insinuates that there would be, as the comment is directed to an article that appeared in the "Daily Mail" on the smoke question, and in which it was pointed out that, by using gas for fires, cooking, and water heating, all would be well—there would be greater efficiency and a cleaner atmosphere. Anticipating he may get cornered on the subject of smoke, the writer asks: "What of the fumes from the gas-fire; for there must be fumes, else why is an 'exhaust' chimney fitted to gas-fires?" We should like this learned gentleman to give us a definition of fumes, and a chemical analysis of them, with the percentages of water vapour and carbon dioxide. He might also tell us, while he is about it, what effect these have upon infinite space, how much the humidity of the atmosphere would be increased, how much the carbon dioxide, and whether trees and plants would not be grateful for the additional supply of carbon dioxide, reciprocating by adding to the available supply of oxygen. Then our friend asks:

> What of the gas-works? Do they not produce smoke? And if they do, as we presume even our gas friends will admit, can gas-works be placed some thirty to fifty miles away where their smoke would cause little inconvenience, and the gas be conveyed in mains? If so, can the pressure of gas at consumers' premises be properly regulated, and will the price still be reasonable?

Those questions prove that this electrical writer is totally destitute of knowledge regarding gas-works processes. Not for the information of our regular readers, but for that of this writer and others who are equally ignorant, we will answer his questions. Do gas-works produce smoke? The only use to which coal is put on a gas-works is its carbonization in closed retorts in which there is no combustion. The heating of the retorts is by producer gas derived from coke. In the circumstances will this inquisitive gentleman tell us why he imagined smoke is produced by gas-works? As this is the condition of things, there is no necessity to place gas-works thirty to fifty miles away "where their smoke would cause little inconvenience." Then as to transmission. In America, natural gas is conveyed in mains several hundred miles, at a pressure of many pounds per square inch. In this country gas is conveyed from gas-works many miles to outlying places; it is also transmitted many miles from coking plants to cities and towns. From whatever place it is transferred, and at whatever pressure, it is dealt with at the end of its journey by governors which reduce the pressure to that ruling in the area of supply. Is there anything else this writer would like to know on the subject to clear his mind of its misconceptions, and to place in it a little more knowledge of these matters? The author of the "Daily Mail" article suggested that within the lifetime of the next generation the open domestic fire would be abolished, and the gas-fire would take its place. But "Electrical Industries" is "inclined to think that the ultimate chimneyless house will use electricity, both as an illuminant and as a source of heat." Will the writer of those words present the argument, for our edification or amusement, upon which he bases that inclination of his?

The Floods.

We are not proposing to make capital out of the fact that through the floods the people of Maidstone who rely on electricity as an illuminant and other purposes were, at the end of the week before last, deprived of the service. The only point we would make is that, while electricity ordinarily is the least reliable of any illuminating or power agent, when such a misfortune arises as that at Maidstone, there are no means whereby it can sustain a supply even temporarily, as in the case of gas with its big storage holders, and the quickly responding water-gas plants. We have not heard of the stoppage of the gas supply at Maidstone.

Art as an Aid to Sales.

It would be difficult to imagine a more valuable means of promoting the sales of gas fires to prospective consumers than by the striking examples of the printer's art exemplified in the portfolio of photographic reproductions of the "Shakespearean" series of gas fires. The series, comprising eight fires in appropriate surroundings, is beautifully reproduced in photogravure. Each of the series is separately printed on heavy antique paper, and tastefully mounted on a stout art-brown back with transparent tissue covering. They are enclosed in a folder measuring $12\frac{3}{4}$ in. by $17\frac{1}{2}$ in., with embossed design and printed in brown and gold. Each photograph can be displayed separately in the showrooms if desired. Messrs. R. & A. Main, Ltd., the makers of the "Shakespearean" gas fires, have already been warmly complimented by many gas undertakings on the artistic value of these portfolios, and also on their foresight in so ably meeting the æsthetic and utilitarian demands of the consumer by the introduction of the "Shakespearean" gas fires.

Scottish Junior Gas Association.—There is to be on Saturday next a joint meeting of the Eastern and Western Districts of the Association, in the Royal Technical College, Glasgow, when Mr. James Brown, of the Industrial Section, Glasgow Corporation Gas Department, will read a paper entitled "Industrial Problems." In connection with the Association's Majority Year celebrations, arrangements are now almost complete for the dinner which is to take place in Glasgow on Feb. 14. It is anticipated that many prominent men in the industry will be present, as well as a number of old juniors now in responsible senior positions in various parts of the country. This is a very appropriate time for past members to come together and unite with their successors in celebrating the twenty-first birthday of the Association. Information and tickets may be had from Mr. John Murray, Gas Department, No. 30, John Street, Glasgow.

GAS-WORKS PURCHASE SCHEMES.

The notices given of Bills to be promoted in Parliament this year which relate to gas undertakings include three proposals for the acquisition of gas companies by local authorities, but in each case the gas-works purchase scheme constitutes only a part of the Bill.

BEXHILL.

The Bexhill Water and Gas Company were incorporated in 1885, and are authorized to supply water and gas within limits which include the borough and parish of Bexhill, the parishes of Ninfield, Hooe, Catsfield, Wartling, and Ashburnham, and so much of the parish of Hurstmonceux as is not within the limits of the Hailsham Water Company; and the Corporation desire to be empowered to purchase and carry on both branches of the undertaking. The proposal is that the Corporation shall purchase the undertaking of the Company for such sum in gross, and on such terms and conditions, as may be agreed upon between the parties or as, failing such agreement, shall be determined by arbitration under the Lands Clauses Acts. The Corporation are to give notice to the Company to treat for the purchase of the undertaking not later than six months after the passing of the Act. The Corporation will also pay the Company the reasonable costs incurred by them in winding-up and distributing the assets. The debenture stocks of the Company and the interest thereon are, after the transfer of the works and until discharged, to be a first charge on the water undertaking of the Corporation. Until the date of the transfer, the Company are to maintain and carry on their undertaking as heretofore in the ordinary course of business, maintaining normal quantities of consumable stores; but they are not, without the previous consent of the Corporation, to enter into any new contract, agreement, liability, or other obligation in respect thereof relating either to capital expenditure or to expenditure out of revenue which would extend beyond the date of the transfer, or increase any of the rates, rents, or charges which were in force on Nov. 15 last.

Part IV. of the Bill is to confer upon the Corporation general powers of gas supply. The price to be charged by the Corporation for gas supplied by them to persons who shall burn the same by meter is not at any time to exceed 1s. 5d. per therm; authority being asked to allow discounts for prompt payment up to 10 p.ct., and in addition thereto rebates to large consumers not exceeding in any case 15 p.ct. The declared calorific value of the gas on the transfer is to be the same as that last declared by the Company. The clause freeing from obligation to supply gas for other than lighting or domestic use in cases where the capacity of the main is insufficient is inserted. It is desired that a person shall not be entitled to demand or continue to receive from the Corporation a supply of gas for any premises for which he has at the same time a supply of gas from an installation other than that of the Corporation or a supply of electricity except from the Corporation, unless he shall have agreed to pay to the Corporation such minimum annual sum as will give to them a reasonable return on the capital expenditure and will cover charges incurred by them in order to meet the possible maximum demand for those premises; and that the sum so to be paid shall be determined, in default of agreement, by arbitration. The portions of the Gas Regulation Act which shall apply to the Corporation are set out. [*Parliamentary Agents: Messrs. Sharpe, Pritchard, & Co.*]

HOYLAKE AND WEST KIRBY.

In this case, also, the Local Authority concerned are desirous of becoming suppliers of both gas and water; for the Bill is to enable the Urban District Council of Hoylake and West Kirby, in the county of Chester, to acquire the undertaking of the Hoylake and West Kirby Gas and Water Company, who were incorporated under a Special Act of 1923. The Company have agreed with the Council for the transfer of the undertaking on June 30 next.

The Council are to pay the Company the sum of £187,000 in cash, and to assume the debts and liabilities (other than mortgage debts) of the Company outstanding on the appointed day—which, as already stated, is June 30, 1925. If the sum due is not then handed over, the Council are to pay the Company, so long as it shall remain outstanding, interest at the rate of 6 p.ct. per annum. If the Company require the Council to take over any or all of the mortgage debts, the £187,000 will be reduced by a corresponding amount. Until the day of transfer, the Company are to carry on the undertaking in the ordinary course of business, maintaining normal quantities of consumable stores, but they are not to enter into new capital commitments exceeding £2500 in any one particular without first obtaining the approval of the Council. After the day of transfer, the Company will wind-up their affairs at their own expense. The Council will take over all persons in the regular employment of the Company (except Mr. A. G. Readdy and three other members of the administrative staff) who may be willing to enter the service of the Council, and will retain all such persons in the same or similar office or employment, and at not less remuneration and on not less favourable terms than under the Company on the day of transfer. The Council are not for a period of three years to discharge any of the administrative staff who may enter their employ, except on account of misconduct. The Council are not to be liable to pay compensation to any officer, servant, or workman of the Company not taken over by them.

Under the terms of the Bill, the sale of the undertaking shall be carried into effect within three months of it becoming an Act. Part III. relates to the supply of gas, and is generally on the same lines as the Bexhill Bill. The price to be charged by the Council for gas supplied by them to persons who shall burn the same by meter shall not at any time exceed 1s. 3d. per therm. The maximum charge for the hire of a prepayment meter and fittings shall be 3d. per therm if a cooking stove is included and 2·5d. without a cooking stove. The maximum charge for the hire of a prepayment meter without fittings shall be 1·5d. per therm, or at the rate of 10 p.ct. per annum on the cost of the meter, whichever shall be the higher. The price to be charged by the Company for a supply of gas may vary according to the purposes for which the gas is furnished, but without any preferential price for the same purposes under like conditions.

The Council desire power to require every consumer of gas, whether supplied by the Council or from any other source, and every other person who uses a stationary or fixed internal combustion engine to provide and employ effective means to silence the exhaust gases of such engine, and to be at liberty to inspect and test any means of silencing provided. Any person neglecting to carry out the provisions of this section shall be liable to a penalty not exceeding £5, and to a daily penalty not exceeding 20s. The Council also desire authority to supply power gas for any purpose other than lighting and to lay mains. The conditions for such supply follow those laid down in the Bill of the Gas Light and Coke Company, noticed last week, p. 30. There are clauses for the protection of the London, Midland, and Scottish Railway Company and the Great Western Railway Company, regarding work affecting any railway lands or property. [*Parliamentary Agents: Messrs. Sharpe, Pritchard, & Co.*]

STOCKTON AND THE HAVERTON HILL-ON-TEES COMPANY.

The third Purchase Bill is being promoted by the Stockton-on-Tees Corporation, and is to enable them to acquire the undertaking of the Haverton Hill-on-Tees Gas Company, Ltd., and for other purposes. The Company supply gas in part of the urban district of Billingham adjacent to the existing limits for the supply of gas of the Corporation.

An agreement has been entered into between the Company and the Corporation for the sale of the undertaking, freed from all mortgages, charges, and debts, for the sum of £24,155. In addition to this sum, the Corporation shall, on the date of transfer—June 30, 1925—take over at a valuation the stocks of materials. Balances at the bank and in hand (other than consumers' deposits), rents and profits, and debts due prior to the day of transfer are to be exempted from the sale. Until the date of transfer the Company will carry on the business and shall maintain the works in their present state, and they are not to borrow money or raise capital without first obtaining the consent of the Corporation. If the money is not handed over on the date named, the Corporation will pay interest at the rate of 7½ p.ct. per annum on the share capital money and 5 p.ct. on the debenture stock money so long as it remains unpaid, and the Company will, as agents of the Corporation, continue to carry on the undertaking.

By Part III. of the Bill, the Corporation desire to extend the limits within which they may supply gas so as to include so much of the urban district of Billingham as is not already within their limits and the township of Cowper Bewley in the rural district of Stockton. The general clauses are on the lines of those contained in the Hoylake and Bexhill Bills. The price to be charged by the Corporation for gas supplied by them to persons who shall burn the same by meter within the part of the urban district of Billingham included within Furness Village shall not at any time exceed the price per therm actually charged in the borough by more than 2d.; and within the rest of the area included in the gas limits under the powers of this Bill, it shall not exceed the price per therm actually charged in the borough by more than 0·8d. Power is sought to lay mains outside for the purpose of supply within the gas limits; and power gas clauses are included. There are clauses for the protection of the Durham County Council, regarding work connected with roads and bridges.

Power is asked for to borrow various sums, and the period for repayment desired in the matter of the money required to carry out the Haverton gas purchase is forty years from the date or dates of borrowing. [*Parliamentary Agents: Messrs. Sharpe, Pritchard, & Co.*]

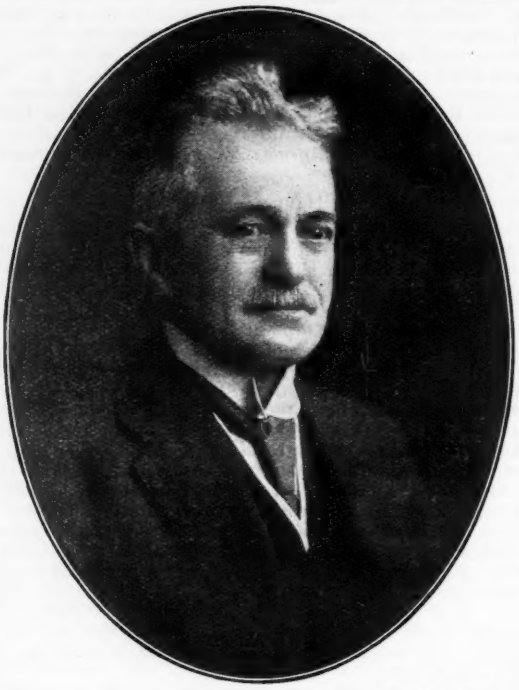
"Journal" Indexes.—Several subscribers have written for the indexes to the "JOURNAL" for the 1924 volumes. Since January of last year, they have been issued in one of the numbers in the month succeeding the end of each quarter—Jan. 16, April 16, July 23, and Oct. 15. This practice will be continued. We are hoping to issue the index for the October-December volume on Jan. 21.

MR. H. N. BARROW

Re-elected Chairman of the Manchester Gas Meter Testing Committee.

Mr. H. N. Barrow, J.P., the subject of the accompanying photograph, last week was re-elected Chairman, for the fifth time, of the Manchester City Justices' Gas Meter Testing Committee. Mr. Barrow was appointed a justice of the city in 1910. He became a member of the Meter Testing Committee, in due time Vice-Chairman, and eventually Chairman. The excellence of the Manchester Gas Meter Testing Station is well known throughout Great Britain. During Mr. Barrow's chairmanship, the Testing Station has been visited by administrative authorities, gas engineers, and meter manufacturers from all parts of the country. To enlighten the public many societies and students have been invited to attend the station in the evening, when Mr. Barrow has fully explained the work carried on there. He has also spoken on the subject at Rotary and other meetings.

When the Sale of Gas Act, 1859, was amended in 1920, Mr. Barrow represented the administrative authorities of Great Britain, at the Board of Trade, accompanied by representatives of the inspectors for testing meters, gas engineers, and meter manufacturers. For the last three years he has been President of the Association of Statutory Gas Meter Inspectors of Great Britain. The work he has done in connection with the testing of gas meters has been acknowledged on many occasions. In



[*Photo by Lafayette.*

business he is allied to the gas industry, having been for over 45 years on the staff, in Manchester, of the well-known tube manufacturers, Messrs. John Russell and Sons, Ltd., of Walsall, and Messrs. James Russell and Sons, Ltd., of Wednesbury. His first 21 years were spent with John Russell and Co., Ltd., and during the last 24 years he has been the Manager of the Manchester Branch of James Russell and Sons, Ltd. Thus he is well known to gas engineers and is held in high esteem by all those connected with the industry.

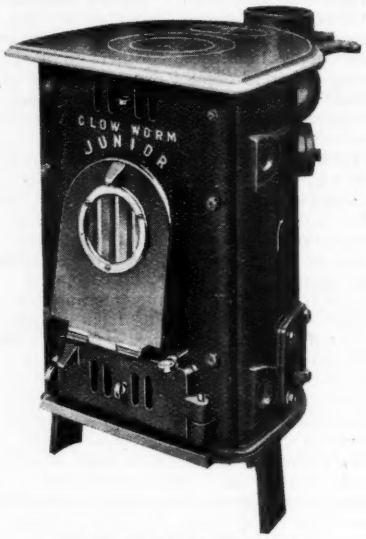
London and Southern District Junior Gas Association.—On Friday, Jan. 30, a meeting of the Association will be held at the Westminster Technical Institute, Vincent Square, S.W. 1, at 7.30 p.m., when Mr. D. Cleave Cross, Assoc.M.Inst.C.E., will deliver a lantern lecture entitled "Notes on the Erection of the New Gasholder at Lea Bridge."

Institution of Chemical Engineers.—Further arrangements for the present session include a joint meeting on Wednesday, Feb. 11, with the Chemical Engineering Group of the Society of Chemical Industry, at the Institution of Mechanical Engineers, when two papers will be presented—one by Mr. Mark Benson, on "Critical Pressure Steam, and its Influence on the Economy of Power Production"; and the other by Mr. Oscar Brünler, on "Submerged Flame Burners in relation to Internal Combustion Boilers and Evaporation Plant." On Wednesday, March 11, there will be a paper on "Expansion and Compression Phenomena in Steam Jets," by Prof. A. L. Mellanby, D.Sc.; and on a date in April as yet unfixed Mr. A. M. O'Brien is to make a contribution on "Continuous Petroleum Distillation."

DOMESTIC SMOKE PREVENTION AND THE COKE BOILER.

As the gas cooker has long been recognized as an indispensable piece of apparatus, so the coke boiler has become an irreplaceable adjunct not merely of the "all gas" house, but also in the equipment of every dwelling that claims, even in the remotest sense, to be modern. The coke boiler, as a factor bearing upon the question of smoke prevention, operates in two important directions: It consumes 5 to 6 tons of coke per year, the production of which entails an output of over 150,000 c.ft. of gas, which also must find a use in lieu of coal; and, in creating a ready outlet for coke, it helps in maintaining a low price for gas. In promoting the use of coke in the domestic field it has been suggested that sales activity in connection with coke boilers should be tempered with discretion, as this appliance is often the means of ousting the gas boiler. If, on a cost and efficiency basis, the coke boiler is preferred, as it is in certain cases, the only direction in which it is necessary to exercise discretion is in the selection of a boiler that in type, construction, and capacity is the right appliance for the job. The experience of the boilermakers is in this connection usually long and specialized; and their guidance in certain cases should be invaluable. They are constantly producing new types of boilers designed to fill the requirements of potential users, with whom they are in constant contact through their technical representatives.

A present tendency is to prefer a coke boiler which not only reveals an open fire as and when required, but is less powerful than the standard types hitherto provided. This latter feature



The "Glow Worm Junior."

is specially desirable where certain simple cooking operations are done by means of the coke fire, and where the boilers are connected to existing storage tanks, which often are of insufficient capacity for larger boilers. The illustration shows the latest production, in this line, of Messrs. O. Bruster, No. 4, Lloyd's Avenue, E.C. 3, the makers of the well-known "Glow Worm" coke boiler.

The Molecular Weight of Oils.

In "Das Gas- und Wasserfach" for Jan. 3, Dr. Otto Werb discussed the method of determining molecular weights by means of the melting point of camphor, which, he considers, owing to its simplicity, deserves widespread use. No apparatus is required except an ordinary thermometer and a melting-point bulb. The molecular drop in melting point for camphor (= 1 mol. in 1 kg. of camphor) is 40° C. It does not matter whether natural or synthetic camphor is used. The melting point of the camphor used must first be determined, and this used as a basis in the calculation. The method has been worked out by Rast for solids, and by Houben for liquids. The author is convinced of its usefulness by practical experience in finding molecular weights of tar oils and solids contained in them. Care should be taken to use only camphor solutions which show small falls in fusion point, as these give the best results. Such solutions are, in addition, less unpleasant to work with, and are more easily introduced into the capillary tube. It is best to use ten to twenty times the quantity of camphor, and the substance is melted up with it. This is best done by means of a sulphuric acid or paraffin wax bulb. Then, if a milligrammes of the substance tested are used to b milligrammes of camphor, and the determined lowering of fusion point is Δ, the molecular weight M required is given by $M = \frac{a \cdot 40 \cdot 1000}{b \cdot \Delta}$.

GAS SUPPLY CENTENARY AT GREAT YARMOUTH.

The Company and their Works.

THE Directors of the Great Yarmouth Gas Company celebrated the centenary of the undertaking last November by entertaining at a banquet a representative assembly of the leading townsmen and various public bodies. A report of the speeches made on the occasion—when Mr. C. S. Orde (the Chairman of the Company) presided—was given in the "JOURNAL" for Nov. 19, p. 521 ; and we are now able to supplement this by some particulars and illustrations from a handsome booklet entitled "One Hundred Years of Gas Supply in Great Yarmouth," a copy of which has been received from the General Manager and Engineer, Mr. P. D. Walmsley, B.Sc. (Hons.).

NEAR VIEW OF SHOWROOM WINDOWS AND ENTRANCE, KING STREET.

EARLY HISTORY.

The Great Yarmouth Gas Light and Coke Company was formed under a Deed of Settlement bearing the date Nov. 15, 1824, and it was in that month that gas for public and private lighting was first supplied in Yarmouth. A contract was entered into with the Paving Commissioners (a body whose functions corresponded to those of the Town Council of the present day) to supply the town with gas for public lighting. Twenty-one years later, in 1845, a new Company was formed for the purpose of carrying out "the existing contracts or arrangements with the Commissioners under the Act of the fiftieth year of King George III. (1810), and for making and executing any similar contracts or arrangements with the Commissioners for lighting the streets, highways, lanes, passages, &c., with coal gas."

In these early days much progress was made in the development of gas lighting. In 1846 the Directors appeared to have felt the need of expert guidance in the extension of the works of the Company, and they resolved at a meeting held on May 5, 1846, to write to Mr. Samuel Clegg, who later reported upon the condition of the works and advised the Directors as to future extensions.

The minutes of the meeting of Directors held on Jan. 5, 1858, contain the following :

> "The indenture of apprenticeship of Charles Hunt was sent in by Mr. Worship, was sealed with the Company's Seal, and returned to him for safe custody."

The gentleman referred to in this minute is Mr. Charles Hunt, M.Inst.C.E., Chairman of the South Suburban Gas Company, and late Chief Engineer to the Birmingham Corporation Gas Department.

Another notable name in the gas industry which appears in the records of the Company is that of Mr. Harry Townsend, M.Inst.C.E., late Managing Director of the Wakefield Gas Company, who was appointed "an apprentice to the Directors in July, 1868, and who left the Company's service with the best wishes of the Directors for his future success on obtaining the appointment under the Crystal Palace District Gas Company in March, 1875."

In 1863, the Company was incorporated by a special Act of Parliament, and from that time onward much progress was made in the development of gas lighting, which proceeded with the continuous enlargement of the works, purchases of land, and other important matters. It was at this period of the Company's history that the sterling qualities of the then Secretary and Manager of the Company were specially marked. The late Mr. W. H. Willis earned the profound respect and confidence of the Directors of the concern by his hard work, consummate tact and skill, and success in administering the Company's interests during this critical and important time.

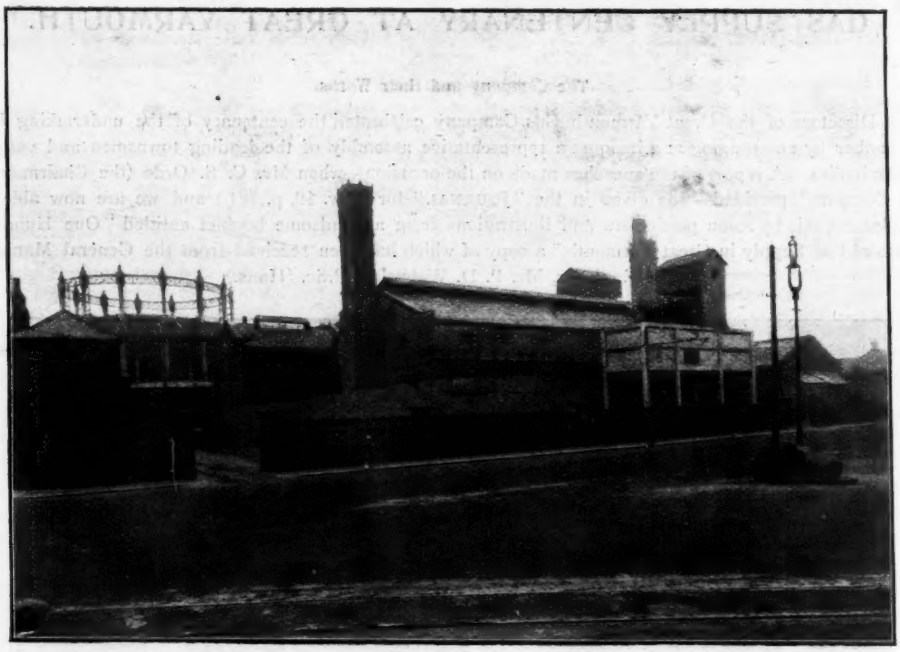
On Feb. 1, 1870, Mr. J. H. Orde, the father of the present Chairman of the Company, was elected Chairman, and served for a period of ten years until his death in 1880. Following the death of Mr. Orde, Mr. G. S. Shingles, who had been a Director since 1851, was appointed Chairman, and held the office until his retirement from the Board in 1888.

In the year 1885 the Company suffered a serious setback owing to the settlement of the foundations of the present large gasholder, the erection of which had just been completed on the site of the old works on the west of Southgates Road. So serious was this failure that it was decided the only safe remedy was to dismantle the holder and re-erect it on its present site, which was done at considerable cost.

Mr. Willis, the Secretary and Manager of the Company, resigned his position owing to failing health in the year 1889, and died two years afterwards. He had been connected with the Company for 44 years, and for 38 years of that period held the office of Secretary and Manager, in which capacity he earned the respect of all who came into contact with him.

In July, 1907, the Board adopted a superannuation scheme for the benefit of the officials and workmen in the Company's service. In 1911 the Directors, feeling the necessity for greater facilities in the distribution department, to enable them to cope with the increasing volume of business, purchased premises at No. 40, King Street, on which site and that of No. 39, King Street, the present showrooms and offices were built. These buildings are of substantial design, and were formally opened on Oct. 25, 1912, by the then Mayor, Alderman Frank Arnold, who was a Director of the Company at the time.

At the shareholders' meeting in 1911 the Chairman reported the deaths of Mr. Charles Panchen, who had served the Company for a period of 45 years, during the last 18 of which he occupied the position of Secretary, and Mr. Charles Ellis, Distribution Superintendent, who had been for a period of 40 years in the service of the Company. Early in 1919 the Company suffered a serious loss in the death of the Chairman, Sir R. H. Inglis Palgrave, F.R.S., one of the foremost economists and



GENERAL VIEW OF THE WORKS.

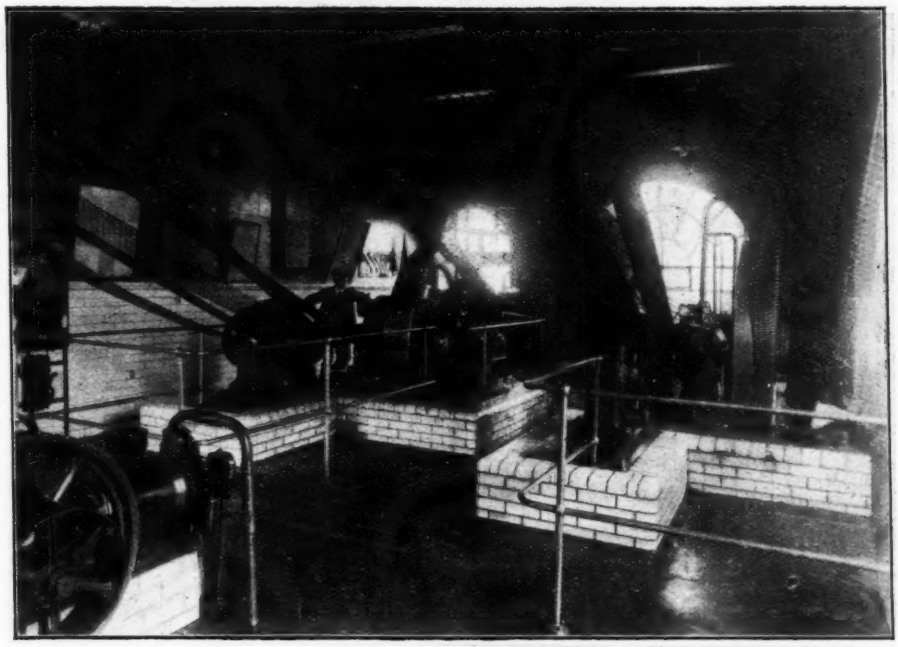
financial experts of his day. The Directors recorded their appreciation of Sir Inglis by resolution in the following terms: "That this meeting desires to place on record its deep sense of the loss the Company have sustained through the death of their esteemed colleague and Chairman, Sir R. H. Inglis Palgrave, F.R.S., who had been intimately associated with the affairs of the Company for the last 45 years, first as Auditor, appointed in 1864, afterwards as Director, elected in 1879, and finally and for the last 31 years of his life as Chairman, being appointed in 1888, during the whole of which long period of office he had taken the utmost interest in promoting the welfare of the Company." The vacancy on the Board caused by the death of Sir Inglis was filled by the appointment of Mr. Joseph Hawksley, A.M.Inst.C.E., the Manager of the Lowestoft Water and Gas Company and the Gt. Yarmouth Water Works Company. Following closely upon the death of the Chairman, the Company suffered a further loss by the death, in April, 1919, of their Engineer, General Manager, and Secretary, Mr. W. J. Carpenter, A.M.Inst.C.E., who had served the Company for a period of 32 years, during the last 12 of which he had occupied the position of Engineer, Manager, and Secretary. Following upon the death of Mr. Carpenter, the Directors appointed the present Engineer and General Manager (Mr. P. D. Walmsley, B.Sc.); and Mr. H. C. Salter, Chief Assistant, who had at that time been in the Company's service for a period of 19 years, was appointed Secretary. In October, 1923, a further link with the past was severed, and the Company suffered a grievous loss by the death of the Chairman, Mr. T. A. Rising, whose great services to the Company over a period of 43 years as Auditor, Director, and Chairman were of incalculable value. Mr. C. S. Orde was unanimously elected to fill the position of Chairman, Dr. A. C. Mayo being appointed Deputy Chairman, and Mr. A. P. Rising elected to the vacant seat on the Board.

WORKS.

The coal used by the Company is derived from the Durham and South Yorkshire coalfields. For many years the supply was shipped in sailing vessels of small tonnage, the unloading being effected by the time-honoured "whipping" method. As the requirements of the Company increased, it became more and more evident that new methods of handling were required. Mechanical contrivances have now been adopted not only to cheapen the cost of delivering and storing the coal, but to expedite the discharging of the collier steamers.

During the war years the Company's operations were seriously affected owing to the shortage of men and materials, and the plant in consequence could not be maintained in a state of high efficiency which is at all times desirable. With the

INTERIOR OF RETORT HOUSE, SHOWING GUEST-GIBBONS RETORT CHARGING AND DISCHARGING MACHINE.



ELECTRIC GENERATING PLANT—TWO 32-KW. DYNAMOS DRIVEN BY 55 H.P. GAS ENGINES.

close of hostilities the Directors began to give serious consideration to improving the methods of manufacture and cheapening the cost of production. Early in 1920 a comprehensive scheme of reconstruction was started, and this was completed in the latter part of 1922. The complete scheme comprised the following work:

(1) New retort bench complete with electrically driven charging and discharging machinery, coal elevators, and 60-ton coal storage hopper, hot coke conveyors and concrete coke bunkers, and coke screening plant.
(2) Carburetted water gas plant having a capacity of 625,000 c.ft. per day, complete with electrically driven blowers.
(3) Two gas-engine driven electric generating sets, each of 32 KW. capacity, driven by 55 H.P. gas engines.
(4) New 60,000 c.ft. per hour gas station meter, replacing an old 17,000 c.ft. per hour meter installed in 1869.
(5) New sulphate of ammonia plant having a capacity of 1 ton of sulphate per 24 hours.

The principal works carried out by the Company's own staff were as follows:

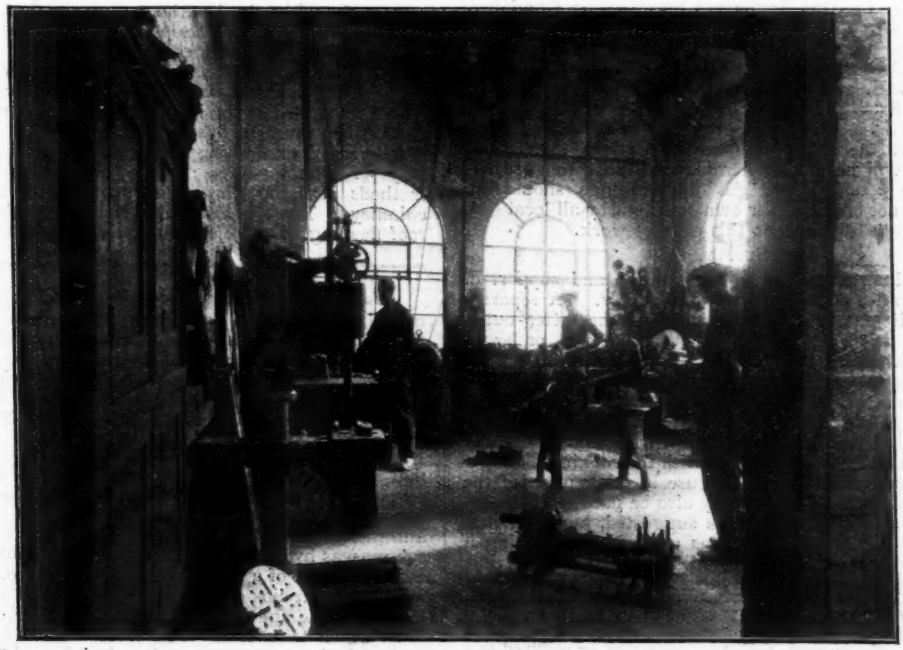
(1) The building and equipment of mechanical engineering workshop, smith's shop, lavatories and mess rooms, stores, and chemical laboratory.
(2) New electric power house.
(3) Water gas house and blower room.
(4) Water gas meter house.
(5) Rebuilding of sulphate of ammonia house on same site.
(6) New hydraulic engine house and pump room.
(7) Reconstruction of exhauster house.
(8) Erection of plant for the complete distillation of tar.
(9) Concrete tar storage tank to store 90,000 gallons.
(10) Motor garage.
(11) Draining and paving of works yard and provision of metalled roads and concrete footpaths round the various buildings.

With the completion of the above scheme the Company's works have been brought thoroughly up-to-date.

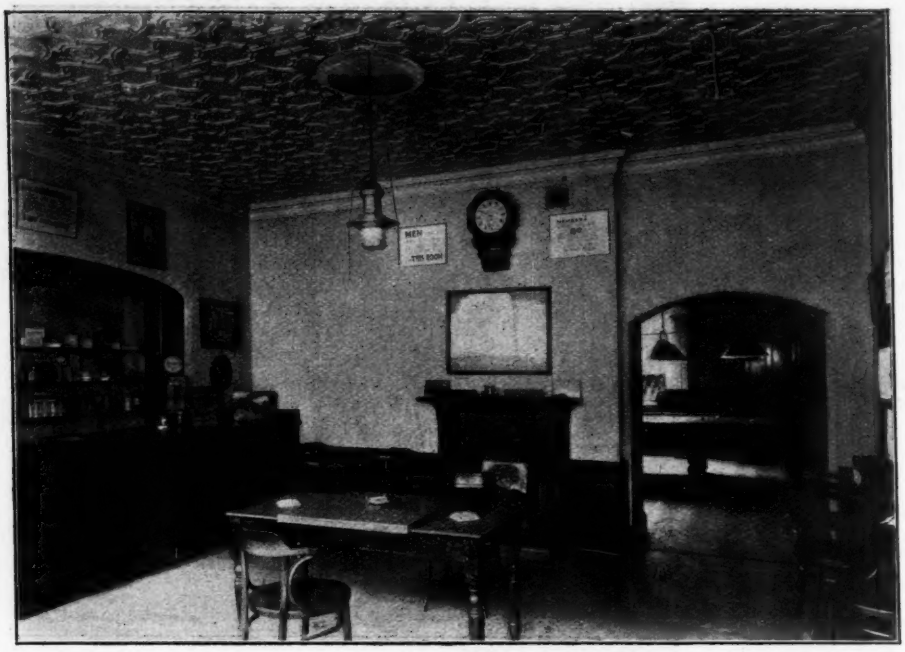
DISTRIBUTION DEPARTMENT.

In Yarmouth, with its summer influx of holiday makers, and afterwards the large number of persons engaged in the annual herring fishing, a large proportion of the gas supplied is used for cooking. In 1889 the Company commenced to supply gas cookers on hire; and at present there are approximately 3240 of these appliances in use.

A great stimulus to the use of gas in the homes of the smaller consumers was provided by the introduction of the prepayment meter in 1895, with an inclusive charge for gas and the hire of lighting and cooking appliances. This brought gas for these purposes within the reach of many who could not afford to equip their own homes, and led to a large accession



MECHANICAL ENGINEERING WORKSHOP.



INTERIOR VIEW OF THE SOCIAL CLUB.

of smaller domestic consumers. So popular has the prepayment meter proved in Great Yarmouth that there are now 5369 consumers of gas by this method.

In order to ensure that consumers obtain the best results from the gas used, the Company provide a staff of skilled men who periodically inspect and overhaul consumers' lighting and other appliances. No charge is made for these services, the consumer paying only for materials which may be used.

OFFICES, SHOWROOMS, &C.

Previous to the year 1921, the offices of the Company were at No. 42, King Street, the showroom and distribution staff being housed at the present offices, Nos. 39 and 40, King Street. This was a most inconvenient arrangement—the duties of the two staffs being so interwoven that great inconvenience was experienced not only by the staffs themselves, but by consumers and the public generally. The offices have now been transferred to the showroom and distribution department building, where the business of the Company is transacted with much greater efficiency and smoothness in working than were possible under the old arrangement.

The Company's relations with its employees are of the very best, and they have a loyal and contented staff of workmen and officials. The old offices at No. 42, King Street, have been converted into a social club, where facilities for billiards and other games are provided. The club is run and financed by the employees themselves, the Company providing the premises. For summer recreation, a piece of spare land at the Company's works has been converted into a bowling green. These social amenities are greatly appreciated by the employees and their families, and the spirit of comradeship thus engendered among the men cannot be other than beneficial to the Company.

INSTRUCTIONS FOR FIXING GEYSERS.*

Owing to the large increase in the number of geysers that are being installed throughout the country, and of the absence of any definite and detailed instruction to gasfitters as to the proper method of fixing, the Gas Appliances Specification Committee of the National Gas Council have prepared a brochure entitled "Instructions for Fixing Geysers," which has been published by the British Commercial Gas Association. The booklet has been compiled with great care, with a view to ensuring that geysers shall be fixed in the most scientific and efficient manner, and that the confidence of consumers may be established, and the extension of the use of gas-heated geysers thereby encouraged. It will be of considerable assistance to gasfitters throughout the country, and gas undertakings should encourage its use, not only by their own staff, but by all local gasfitters who are called upon to do this class of work.

GAS SUPPLY.

After giving instructions as to the position and support of geysers, the booklet deals with the gas supply. A separate supply pipe, it is stated, should be run from the meter outlet to the geyser, if this is at all possible. Where a ¾-in. or larger supply pipe is available, the geyser may be connected to this, but care must be taken to ensure a sufficient volume and pressure of gas without interfering with other supplies in the house. The advisability of inserting a full-way tap in a position near to the geyser, so that it may be disconnected for examination or cleaning purposes without interfering with the cooking arrangements or gas fires which may be in use in other parts of the premises, is mentioned. The tap may also be used to check excessive pressure at the burners. It is suggested, however, that the best means of controlling the gas pressure is by fixing a special regulator. This section includes a useful table giving the sizes of the pipes required for geysers of varying capacity. Experience proves that unsatisfactory results are often due to geysers being connected to small services or meters, or both; and a table giving the relative sizes of geysers and meters is included in the booklet.

FLUE PIPES.

Particular attention is paid to this important subject. No geyser should be fixed without a proper flue pipe, which must be of a size not less in diameter than the flue spigot at the top of the geyser, and carried into the nearest chimney flue, or through the ceiling or the external wall. Where the outlet is through the external wall, a suitable terminal or outside wind guard must also be fixed. A baffle, fixed as near to the ceiling as possible, must always be used.

A series of six drawings shows the right way and the wrong way of fixing geysers; while other diagrams explain the methods of fixing flue outlets under roofs and into adjacent chimneys. There is also a diagram illustrating the method of roof flashing when geyser flues are extended through the roof.

* "Instructions for Fixing Geysers." Compiled by the National Gas Council, and published by the British Commercial Gas Association, No. 28, Grosvenor Gardens, Westminster, S.W. 1. Copies may be obtained at a price of 7s. 6d. per dozen, net, carriage extra, with a proportionate reduction for quantities.

Yorkshire Junior Gas Association.—Two papers are to be submitted at a meeting next Saturday afternoon (Jan. 17) of the Yorkshire Junior Gas Association, which is to take place in the Darley Street Showrooms of the Bradford Corporation Gas Department. Mr. F. J. Jackson, of Sheffield, will deal with "The Valuation and Testing of Gas Coals," and Mr. J. Wilson, of Halifax, with "Complete Gasification—the Tully Method."

Anthracite as a Source of Hydrogen.—It has been suggested that anthracite coal may be a useful source of hydrogen for such purposes as ammonia synthesis. M. Libeau, at a recent meeting of the Académie des Sciences, stated that at 1000° C. Welsh anthracite evolved 278 cub.m. of gas per ton, of which 230 cub.m. was hydrogen; at 1200° C. the amount of hydrogen was 291 cub.m. out of a total of 318 cub.m. The other gases present were: Carbon dioxide, 5 p.ct. (evolved up to 500° C.); and carbon monoxide and methane, 1 to 2 p.ct. (evolved up to 800° C., after which temperature no more methane was evolved). No olefine hydrocarbons were found. French authorities gave similar results.

CORRESPONDENCE.

[*We are not responsible for opinions expressed by Correspondents.*]

Critical Study of Tests on Water Gas Plant.

SIR,—I wish to make it quite clear that my previous letter on this subject (see "JOURNAL," Dec. 3, 1924) was not written with the object of under-estimating the possible value of thermal balances constructed to show separately the amounts of heat added to the bed of fuel during the blow periods and abstracted during the run periods. I merely endeavoured to show that Dr. Travers, in his paper to the Institution of Chemical Engineers (see "JOURNAL," Nov. 19 and 26), had drawn conclusions from figures derived without taking some of the important points into consideration. My letter has given rise to another (see "JOURNAL," Dec. 10) and an article (see "JOURNAL," Dec. 17) from Dr. Travers. Both the letter and the article have strengthened my opinion that Dr. Travers' conclusions were based on figures largely influenced by (1) experimental errors, (2) the basic thermal data chosen, and (3) subsidiary reactions not considered by Dr. Travers.

Allow me to revert to the three main points raised in my first letter.

I.—Dr. Travers utilized the heat of combustion of graphite in calculating the thermal changes which occur in the reactions between steam and coke, whereas it is usual to use the heat of combustion of so-called amorphous carbon. Dr. Travers attempts to defend his procedure by contending that the physical properties of coke carbon appear to resemble those of graphite more closely than those of amorphous carbon, although no unimpeachable set of experiments appears to have been carried out on this point. This contention cannot be accepted. In the first place, the forms in which hydrogen, sulphur, nitrogen, oxygen, and ash are present in coke are unknown, so that the calorific value of coke carbon cannot be calculated with the required accuracy from calorific value determinations of coke. Secondly, according to Greenwood and Cobb ("J.S.C.I.," 1922, XLI., 181T), the specific gravity of coke substance prepared at 1100° C. was only 1·87, which does not even approximate to the specific gravity of graphite—viz., 2·3. Further, Dr. Travers himself now concludes that possibly the figure he used for the heat of combustion of coke carbon is on the low side.

II.—Dr. Travers did not account for the heat expended in evaporating the moisture from the coke as charged into the generator. His opinion that this omission is probably of little importance, since it would affect both blow and run thermal accounts equally, cannot be substantiated. Our experiments have shown that the moisture is driven off from the coke during the first blow after charging the generator, so that this item affects the blow period only.

III.—The manner in which the hydrogen of the coke is gasified is a factor which cannot be decided from our present knowledge of the subject. It may be gasified entirely during the blow periods or partly during both blow and run periods.

I am definitely convinced that the water gas process is more complex than would appear from Dr. Travers' paper.

A. PARKER.

The University, Leeds, Jan. 6, 1925.

Low-Temperature Carbonization.

SIR,—As a user of Coalite smokeless fuel (made by Low-Temperature Carbonisation, Ltd., of Barnsley) I read with interest your review of the "Features of the Year," in the "JOURNAL" for Dec. 31, and particularly those paragraphs dealing with low-temperature carbonization. I rejoice that you do not place this method of treating coal among the "pariahs" of the carbonizing processes; but I am at a loss to understand your evident prejudice against the method of carbonizing coal used at Barnsley. After all, this particular plant is the only one of many efforts which has achieved actual results on a considerable scale and on a commercial basis.

Am I not right in saying that low-temperature carbonization as practised at Barnsley is the only process that has produced and sold thousands of tons of smokeless fuel, and is the only one that has sold hundreds of tons of crude oil at prices actually higher than crude petroleum?

In this club we have used Coalite for some months for the central heating system, as well as in open grates, and have reduced our fuel bill by half, and had greater warmth. While the growing use of gas produced by high-temperature practice has done much to improve atmospheric conditions in our larger cities, the adoption of low-temperature carbonization will do more, because the average householder demands his open grate, and gas or coke does not give him the sort of fire he likes. The demand for Coalite, however, shows that he is eager for it. In my opinion the gas industry and the colliery owner will eventually come to the conclusion that low-temperature carbonization is a valuable adjunct to their respective industries, as a method of improving public service and increasing revenues.

A. M. FRASER, Secretary.

Harcourt Tennis Club, Gliddon Road, Barons Court, W., Jan. 9, 1925.

Hereford Retains Gas for Public Lighting.—After a public demonstration of lighting by gas and electricity, the Hereford City Council adopted at their last meeting a recommendaion of the Lighting Committee that gas should be retained for public lighting. The lighting has been brought up to date by substituting twin inverted burners having No. 2 mantles for the old-fashioned "C" burners in the outlying districts. This policy has not only improved the general lighting of the city, but it has also enabled a lower charge per lamp for gas and maintenance to be made—to the satisfaction of all concerned.

REGISTER OF PATENTS.

Retort Furnaces.—No. 204,067.

BERGH, S. V., of Kinnekulleverken.

No. 23,345; Sept. 18, 1923.

The object is to provide a simple plant for distilling bituminous material, which is fed through a retort into a furnace fitted with mechanical means for removing ash, and in which the coke residue is used for producing heat for further distillation and steam generation. A plurality of retorts are arranged in rows or groups over partition walls which divide furnace spaces beneath them into chambers. The invention also comprises various features of construction, to allow an easy supervision of combustion, to provide for a uniform distribution of air and steam through the coke layer, and to relieve the coke layer of pressure by the material in the retort.

Gas Controllers for Lamps.—No. 213,920.

MENJAUD, G., of Attigny.

No. 8543; April 4, 1924. Convention date, April 5, 1923.

The object of this invention is to provide an improved valve control device for controlling the supply of gas to lamps operated by varying pressure. The device comprises a box divided into two compartments. One is open to the atmosphere and contains an expanding chamber of a multiple diaphragm type connected to the gas supply. The other is a gas chamber containing valve mechanism consisting of a stop valve mounted on a spring-controlled arm normally urged towards a position in which the valve closes an orifice leading from the gas chamber, a disc carrying a number of pins which engage the arm successively so as alternately to open and close the valve as the disc is rotated, and a ratchet wheel connected to the disc and actuated by a pawl connected to the expanding chamber through a flexible diaphragm mounted on a separating wall between the compartments.

Low-Temperature Distillation.—No. 217,174.

HINSELMANN, E., of Königswinter.

No. 3379; Feb. 8, 1924. Convention date, June 6, 1923.

This invention relates to low-temperature distillation carried out in stages; the heating medium being the sensible heat of indifferent gases. The object is the utilization of the sensible heat of the heating gases and distillates, and an immediate reduction of the temperature of the distillation products. The volatile distillation products from the drying stage are conducted into a heat exchanger, in which they are superheated. In this heat exchanger, which reduces the drawing-off temperature of the products, part of the products of high boiling point are condensed. This lessens the working of the condensation plant. Since the volatile products of the drying stage are mainly composed of steam, this, when used as a heating gas, may be superheated in the heat exchanger of the distillation stage, and reused directly as heating medium in the drying stage. An excessive amount of steam may be heated still higher in a separate heater, and used as heating agent in the distillation stage.

Distillation of Carbonaceous Materials.—No. 224,568.

SALERNI, P. M., of London, and SALERNI, E. M., of Paris.

No. 13,033; May 15, 1923.

The objects of this invention, which concerns itself especially, though not exclusively, with low-temperature distillation, are to increase the surface exposed to the influence of the heating or cooling medium, to allow for expansion and contraction of the retort, and to improve generally the construction and disposition of the retort chambers so that space is economized and the volatile constituents may be collected and condensed separately and efficiently. The retorting apparatus consists of a number of troughs or cylinders located side by side in the same plane; and the material is fed laterally and continuously from trough to trough. The surfaces exposed to the heating medium are increased by undulating or corrugating the surface of the troughs. The hot coke may be cooled in a plain or corrugated cylinder provided at one end with a gastight chamber. Arrangements are provided for drying the fuel before it is subjected to carbonization.

Gas-Fired Oven Furnaces.—No. 224,610.

LUCAS, E. E., of Birmingham.

No. 20,934; Aug. 17, 1923.

This is an improvement on Patent No. 215,951, and the object is to provide a furnace whereby the work being heated may be cooled more gradually than was possible before. In the previous patent a quenching tank is located on the side of the furnace farthest from the feeding end, and the furnace is provided with a roof which forms a chamber sealed at one end by a hot gas screen, and at the other end by communication with the quenching tank. This prevents access of oxidizing air to the articles treated, and enables the work to be carried out automatically and under observation. In practice, however, the patentee has found the chamber too short, and in the present invention has provided a sealed cooling chamber connecting the heating chamber with a quenching tank. The length of this chamber is about the same as the heating chamber within the oven.

Gas-Ovens.—No. 224,984.

GRANT, C. D'V., and WILLIAMS, Sir W. W., both of London.

No. 22,335; Sept. 5, 1923.

This invention is to eliminate any tendency for meat to become dry when cooked in a gas oven. It relates particularly to large ovens for use in hotels, &c. Steam is delivered into pipes located within the oven in such a position as to be heated by the gas flames, so that the steam will be superheated; the pipes being fitted with nozzles whereby the superheated steam can issue into the oven during cooking operations.

Gas-Fires.—No. 225,261.

CRACKNELL, T., of Tooting, and MILLER, A. H., of Westcliff-on-Sea.

No. 19,724; May 1, 1924.

This invention relates to burners for gas fires in which the gas, on its way to the burners, is preheated. The object is to provide an improved form of fireclay nozzle provided with orifices for the gaseous mixture. Each burner uptake is surrounded by a fireclay nozzle which rests on a shoulder on the uptake tube in such a manner that it does not make contact with the top of the tube, so that the outer or peripheral row of orifices is not obstructed.

Gas Pressure Regulators.—No. 225,327.

SMALLWOOD, A., and FALLON, J., both of Smethwick.

No. 24,883; Oct. 6, 1923.

This invention is for the automatic control of gas producers. The control is effected by regulating the steam or air supply to the blast pipe. A bell dipping into an oil vessel is in communication with the conduit conveying the producer gas from the plant to the point of consumption. According to the pressure of gas in this conduit, the bell is caused to rise and fall, and in so doing to actuate a regulating valve in the steam supply. The valve is of the piston type; the rod of the piston being coupled to one arm of a lever, the other arm being coupled to the bell of the regulator. The invention is applicable to hand and mechanically operated producers.

Horizontal Retorts.—No. 225,377.

TOOGOOD, H. J., and ROBERT DEMPSTER & SONS, LTD., both of Elland.

No. 29,940; Nov. 28, 1923.

This invention relates to the heating of horizontal retorts, and has for its chief object the provision of a tubular regenerator for waste heat and secondary air, which, while retaining the full means of control, will enhance efficiency of heat transmission, and also provide improved facilities for cleaning, inspecting, and repairing the interior waste-heat flues, and at the same time will enable the divide or partition between the waste heat and secondary air to be constructed as thin as possible, while reducing the risk of leakage from secondary air and waste-heat tubes to the minimum.

Both the waste heat and secondary air are preferably carried by machine-made tubes. These tubes are arranged in two contacting vertical tiers or planes; and to get the above advantages, those tubes carrying the secondary air are arranged with the axis vertical, and those tubes carrying the waste heat are arranged with the axis horizontal. All joints in the one tier are staggered in relation to the joints in the other tier, so that possible leakage is prevented to the maximum extent, and should a fire crack develop in one tube it is covered by the solid wall in the adjacent tube.

Two flows of secondary air are controlled by inlet slides, and, by the arrangement of the tubes, these two flows are accommodated in the one plane of vertical tubes. To accommodate two flows of waste heat and to control same by two dampers in the one vertical plane of horizontal waste heat tubes, the tubes are perforated, so that, while each row of horizontal waste heat tubes points to an aperture in the outer wall, for cleaning, inspection, and repairing (the area of tubes being sufficiently large), the flow of waste gases passes through the bore of the tubes and through apertures in their floors to the dampers, for giving full control of the heat within the setting. Any number of rows of tubes or apertures may be arranged to suit the particular setting for which the regenerator is to be applied. The main feature of the invention consists in the combination of two planes of tubes staggered in relation one to the other, and each plane furnished to accommodate at least two flows of air or waste gases respectively.

The arrangement is shown in the accompanying front elevation (partly in section) and vertical section.

Lubricator for Gas Compressors.—No. 225,419.

JAMES KEITH AND BLACKMAN COMPANY, LTD., and KEITH, G., both of London.

No. 2564; Jan. 31, 1924.

The object of this invention is a lubricating device for supplying small quantities of oil to gas and air compressors, so that the lubrication starts and stops with the operation of the compressor. Essentially the invention combines the measuring effect of a syphon with the lighting effect of the gas pressure, which in conjunction start and stop the flow of lubricant.

APPLICATIONS FOR PATENTS.

[Extracted from the "Official Journal" for Dec. 31.]

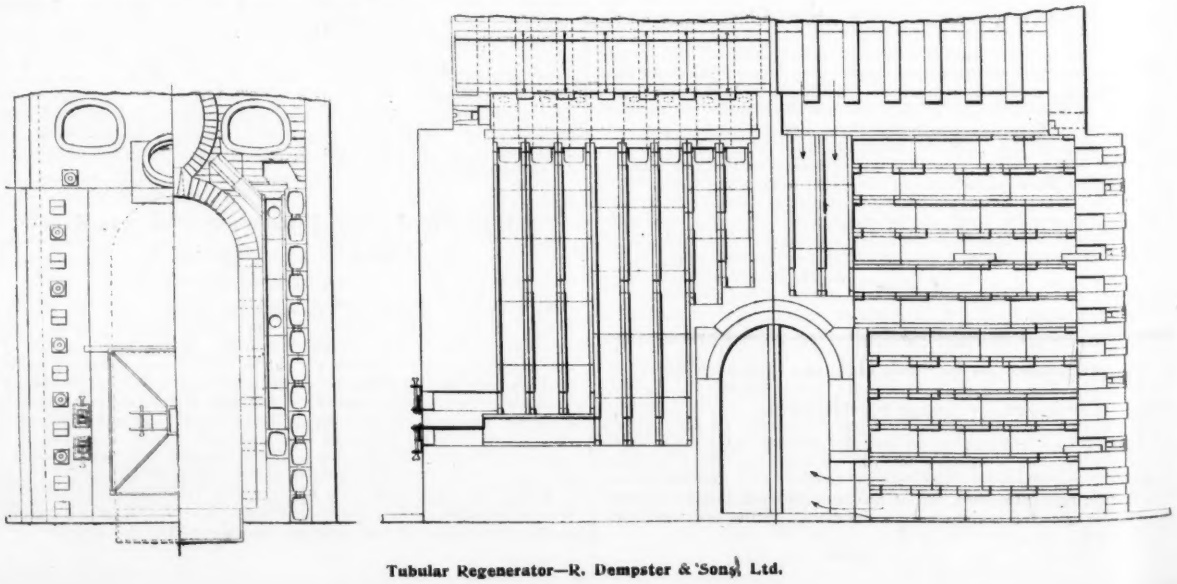
Nos. 30,715 to 31,383.

COLLIN & Co.—"Gas washing, &c., apparatus." No. 30,804.
DAVEY, G. W.—"Furnace lining for generators." No. 31,041.
DONALD, W.—"Distillation of coal, &c." No. 31,287.
EWART, J. W.—"Geysers." Nos. 30,999, 31,000, 31,001.
GILL, H. A.—"Manufacture of ammonium sulphate." No. 31,230.
MERZ AND M'LELLAN.—"Fuel distillation." No. 31,213.
NORRIS, W.—"Apparatus for charging coking retorts." No. 31,039.
POWER GAS CORPORATION, LTD.—"Production of combustible gases and coke from bituminous fuel." No. 31,219.
RAMBUSH, N. E.—See Power Gas Corporation, Ltd. No. 31,219.
RILEY, W. A.—See Merz and M'Lellan. No. 31,213.
SCHAFER, J.—See Collin & Co. No. 30,804.
STÉ. DES FOURS À COKE SEMET-SOLVAY ET PIETTE STÉ. ANYE.—See Gill, H. A. No. 31,230.
SUTTLE, C. E.—"Atmospheric gas burner for heating." No. 31,270.
WAITE, F. H.—See Davey, G. W. No. 31,041.
WAKERELL, A.—"Rust trap for incandescent gas burners, &c." No. 31,184.

[Extracted from the "Official Journal" for Jan. 7.]

Nos. 1 to 241.

BRETHERICK, D.—"Filling-doors of retorts, &c." No. 105.
CHEMICAL ENGINEERING AND WILTON'S PATENT FURNACE COMPANY, LTD.—"Methods for dealing with effluent, &c., waste liquors and vapours." No. 230.
CROWTHER, H.—See Bretherick, D. No. 105.
HAWKES, C. A.—"Towers for cooling gases, &c." No. 140.
HERSEY, S.—"Gas washers." No. 222.
INSTONE, A. J.—"Gas compressors." No. 167.
KIRKHAM, HULETT, AND CHANDLER, LTD.—See Hersey, S. No. 222.
LECOCHE, J.—"Water gas plants." No. 35.
PINTSCH AKT.-GES., J.—"Gas valves." No. 163.
WALTER, C. M.—"Muffles or furnaces." No. 206.
WILKINSON, A. E.—"Gas burners for stoves, &c." No. 184.
WILTON, N. & T. O.—See Chemical Engineering and Wilton's Patent Furnace Company, Ltd. No. 230.
WRIGHT, G.—See Lecoche, J. No. 35.



Tubular Regenerator—R. Dempster & Sons, Ltd.

MISCELLANEOUS NEWS.

NEW SHOWROOMS AT LEAMINGTON.

Enterprise of the Leamington Priors Gas Company.

Last Friday week the Leamington Priors Gas Company opened their new and attractive showrooms in Regent Street, Leamington; the inaugural ceremony being performed by Mr. F. W. Goodenough, Executive Chairman of the British Commercial Gas Association. Dr. Harold Mason, J.P. (Chairman of the Directors), presided, and was supported by Dr. F. H. Haynes, J.P., and Mr. J. Ferguson Bell, M.Inst.C.E. (President of the Institution of Gas Engineers), Directors of the Gas Company.

Dr. MASON, in opening the proceedings, said he thought the improvement effected by the new showrooms would be appreciated. They were in a much better position than the old establishment in Bath Street, being far more central. The Gas Company felt it their duty to point out the advantages to be derived from gas.

GAS AND PUBLIC HEALTH.

Mr. F. W. GOODENOUGH said that to have a showroom in a good position in a town was a matter of great importance, not only to the gas company, but to the town itself. It was of real importance to any town that it should know all there was to know about what gas could do in the service of the community; and showrooms in the centre of the town constituted good publicity. Gas was a great factor in public health, and was therefore doubly important to a town which prided itself upon being a health resort. It was a duty of every public utility undertaking to keep the consumers fully informed. There had been great progress made in the provision of pure water supplies, efficient sewage schemes, and pure milk; and it was necessary that much more should be done in the direction of purifying the air of their cities from smoke. This was of great importance to a town like Leamington. Smoke had been proved by scientific and medical research to be a great drawback to the health of the people. The obscuring of the rays of the sun by smoke, or even by glass, militated against the health-giving and healing properties of the rays of the sun. Medical officers of health had found that the hours of bright sunlight had a direct effect on the death rate from all kinds of respiratory diseases. During the three months of the coal stoppage in 1921, it was reckoned that five hundred lives were saved in Glasgow alone by the enforced purity of the air and the freedom from respiratory diseases. In conclusion, Mr. Goodenough congratulated Dr. Mason and his fellow Directors on their enterprise, and declared the showroom open.

AN APPEAL TO THE PUBLIC.

A hearty vote of thanks was accorded Mr. Goodenough on the proposition of Mr. FERGUSON BELL, who invited consumers to make full use of the showroom and inspect the up-to-date gas apparatus.

Mr. R. S. RAMSDEN, General Manager and Engineer, in seconding, said gas companies were often twitted with having a monopoly; but this was not the case in Leamington. He contended that his Company were rendering a great public service to the town. The Company were anxious for consumers who might at any time feel they were not getting full and satisfactory service, to make their complaint, so that matters could be put right. The Leamington gas undertaking was founded over a hundred years ago, and had grown to such an extent that they now paid £25,000 a year in salaries and wages, the greater part of which was spent locally by their 170 employees.

The resolution was carried with acclamation; and in reply Mr. GOODENOUGH made a touching reference to the memory of his friend the late Councillor T. Berridge, a former Manager of the Company. Tea was afterwards served.

The new showrooms, the oak panelling of which was carried out by Mr. J. W. Bowker, of 45, Newhall Street, Birmingham, reflect great credit on the Gas Company.

STOCKTON GAS PRICE INCREASED.

The Stockton-on-Tees Corporation decided on Tuesday of last week to increase the price of gas. This followed a report to the Gas Committee by the Manager (Mr. W. W. Atley) which stated that there would be, on figures then obtaining, a net loss at the end of March on the year's working.

The Chairman of the Committee (Alderman J. MacNaughton) said sanction was being sought to increase the price by 3d. per 1000 c.ft., and for the capitalization of certain items which at the beginning of the year they estimated might be taken out of revenue. For a long period the gas undertaking had contributed substantial sums towards the relief of the rates. Last year, out of revenue, they spent £12,000 on new cookers and stoves, which was a big sum. The trouble the Committee had to face was that the income from the sale of residuals had fallen heavily through a drop in prices, and they had to face a deficit of £13,000. They therefore proposed to make the price of gas in the parliamentary borough 3s. 4d. per 1000 c.ft., or 8d. per therm, as from Jan. 1, with a discount of 10 p.ct. on accounts paid within fourteen days.

Labour members protested against the increase, reminding the Council that last year they took £2000 out of the profits to help the borough fund rate. Amendments were submitted that the borough fund should return this amount, or that it should meet the increase, but they were lost by a large majority.

The Borough Accountant stated, in regard to capitalization of certain items, that it would be better, in his opinion, to apply for sanction for a loan of £25,000, made up as follows: Mains, £12,000; cookers, £7000; fires, £5000; and meters, £1000.

GAS REGULATION ACT APPLICATIONS.

There has appeared in the "London Gazette" the following further notice regarding an application to the Board of Trade under the Gas Regulation Act.

SPECIAL ORDER.

Carlisle Corporation.

The Corporation notify their intention to apply to the Board of Trade for an Order under section 10 extending their limits so as to enable them to supply gas in the parishes of Rockcliffe, in the rural district of Carlisle, and Hayton, in the rural district of Brampton, and conferring upon the Corporation further borrowing powers.

GAS AND ELECTRICITY.

In the "Yorkshire Observer and Trade Review" for Jan. 5 is an article on the gas industry, from which the following is an extract: "The year 1924 has been notable for what can be termed a bringing together of the gas and electricity industries; and it may not be many years before the fierce antagonism at one time existing between the two will have completely disappeared, each finding its most profitable sphere of operation, with, at the same time, close working relations on the production side. There are two directions in which this can take place. On the one hand, electricity and gas undertakings might be controlled by the same management. This is already done in the case of small undertakings with complete success, and may easily be extended to larger undertakings. On the other hand, the opinion has gained strength, at any rate in the gas industry, that much good would come to the country in many directions if the gas industry were called upon to supply the fuel for the generation of electricity. In both directions evolution must inevitably play its part, and it need only be recorded here that the year 1924 has seen a considerable fillip given to this."

BLACKPOOL CORPORATION BILL.

Lively scenes marked a Town's Meeting, held at Blackpool last week, to approve of the Parliamentary Bill which is being promoted by the Town Council. Several of the important clauses were "turned down," and at one stage the interruptions became so persistent that the Mayor threatened to adjourn the proceedings.

Mr. J. Fenton characterized as unfair a clause regarding a tenant's liability for a sub-tenant's gas supply, and he moved it should be deleted. Mr. Sheard seconded, and the resolution was carried.

Mr. H. E. Evans moved a deletion of a clause: "That the Corporation may in connection with their gas and electricity undertakings fit-up showrooms and offices, exhibit specimen installations, and give demonstrations of the uses to which gas and electricity can be put." He described this as an unwarranted and unnecessary expense, which would serve no useful purpose. Mr. C. Furness said the purpose of the clause was to instal showrooms where they could demonstrate the uses of gas. They had opened an electrical showroom in Birley Street, and he advised ratepayers to attend the demonstrations and receive information. A ratepayer said it had not been shown that the majority of other towns who had showrooms in which they sold fittings had made them paying concerns. The resolution was carried by a large majority.

PAST YEAR AT BURNLEY.

The past year has been a very strenuous one for the Burnley Corporation Gas Department. It was only through great difficulty that efficient service was maintained, as practically all the present manufacturing plant has exceeded the period of its maximum usefulness. Every effort is being exerted to prepare for the speedy erection of a new works. The present works will be displaced in two stages, and the first section of the scheme will cost between £250,000 and £300,000. When this section of the new works is erected the present unsuitable site will be vacated. A holder has been completed on the new site, and is now in use. The capacity of this is 3,000,000 c.ft., or two-thirds of a day's consumption. A station governor is in course of installation, so that gas may be served directly from this holder into the town. About 1½ miles of 30-in. connecting main has been laid by the employees. The provision of a waste-heat boiler—the first of its type in Burnley—and a pan ash washer effected substantial economies. There has been an increased consumption of gas, and more appliances issued. Street lighting also has been made more efficient, so that Burnley can be regarded as one of the foremost towns in this respect. Exterior shop lighting by gas has become popular.

New Companies.—The Worcestershire Fertilizer Company has been registered, with a capital of £5000 in £1 shares. To carry on business as brassfounders and manufacturers of gas and electric light fittings at Suffolk Works, Aston Brook Street, Birmingham, a Company has been registered under the style of Barnes and Hacker, with a capital of £3000. The Le Bas Tube Company has been registered, with a capital of £50,000, to acquire the interest and goodwill of Mr. Edward Le Bas in the business of a manufacturer of, and dealer in, tubes and fittings carried on by him at Cyclops Works, and at Victoria Wharf, Millwall. The Pollard Engineering Company has been registered, with a capital of £2000, to manufacture water-heating appliances and devices for lighting or heating.

STOCKTON AND THE HAVERTON GAS-WORKS.

The principal item in the Bill proposed to be promoted by the Stockton Corporation, which is referred to on another page of this issue, is the purchase of the Haverton Hill-on-Tees Gas Company's undertaking. About a hundred people attended a town's meeting last Friday, presided over by the Mayor (Mr. L. Ropner), which was held for the purpose of approving the Bill.

The Town Clerk (Mr. T. Downey), explaining why the Corporation desired to acquire the Haverton Hill undertaking, said it was not a fact that the proposed acquisition was largely for the purpose of extending Stockton's territory. The Corporation were prevented by the terms of an agreement with the Billingham Urban Council from using the matter as an argument in favour of any boundaries extension. In addition, the fact that a big or small municipality were supplying outside authorities with such necessities as water, gas, electricity, or other like amenities would not in the future be considered a sufficient argument to bring outside authorities unwillingly into the boundaries of such boroughs. They were not buying a derelict, insolvent concern. With the exception of one year, when (owing to the effect of the coal strike) they paid 5 p.ct., the Company had distributed dividends of 7½ p.ct. They were not, therefore, dealing with a concern compelled to sell, and the purchase figure was £24,165. There was good prospect of increased consumption in the area in question, because the Corporation would be able to reduce the price of gas from 4s. 10d. per 1000 c.ft. to somewhere in the region of 3s. 6d. It was a long time since the Stockton Corporation had had such a good commercial proposition.

Councillor Allison opposed the resolution of assent, saying that the only people who would benefit were the Directors and shareholders of the Gas Company. The recent purchase of the Yarm Gas-Works by the Corporation had not cheapened gas at Stockton, and had been of little, if any, benefit to the town. Other Labour and ex-Labour members of the Council objected, and Alderman R. T. Hodgson appealed to his fellow-townsmen to look at the question from a purely business standpoint, and avoid side issues. He thought they could safely be guided by the Town Council.

Alderman J. McNaughton (who is Chairman of the Gas Committee) said that up to the preceding few days no serious amendment had been submitted to the proposal. At Yarm, he pointed out, since the works were acquired the consumption had been increased by 2 million c.ft., which had produced £600 more than if it had been sold in the borough.

The discussion was carried on for nearly three hours; but with the exception of minor clauses relating to the extension of mains to Eaglescliffe, the consolidation of rates, and the appointment of professional auditors, the resolutions involving the clauses in the Bill were defeated by overwhelming majorities.

It subsequently transpired that outside the Labour Party headquarters had been exhibited a notice calling upon electors to attend the meeting. That there had been a response by the people appealed to by such a notice was evidenced by the applause which greeted the utterances of the opposition speakers.

SMOKE AND HEALTH.

Bane of the Open Fire.

The serious effect on public health of the pollution of the atmosphere by smoke, and the special culpability of the domestic open fire, are the subject of comment in the annual report of Dr. R. King Brown, Medical Officer of Health for Bermondsey. He asserts that smoke pollution is one of the most urgent problems of public health, and with the growth of urban areas it becomes increasingly important. That respiratory diseases, including pulmonary tuberculosis, are greatly aggravated by the condition of the atmosphere is, he says, universally admitted.

"Here in London the death rate from these diseases mounts up during and immediately after a fog, so that there can be no question of a connection between the two. The problem is a very complicated one, especially as three-fourths of the smoke is caused by domestic chimneys, and more than three-fourths of the damage. In the case of industrial smoke, the combustion, being done in high-temperature furnaces, is more complete, and there is an absence of tar and acid products, whereas in domestic smoke, caused by the combustion of ordinary coal at a low temperature, there is a very large proportion of tar and acids, which are the chief causes of the damage, not only to buildings, but to people's lungs. It is thus evident that the stopping of industrial smoke, though it will help matters considerably, does not by any means solve the problem of the pollution of the atmosphere, since it leaves domestic smoke untouched.

"The problem is mainly an economic one. Until a cheap smokeless fuel equal in efficiency and price to ordinary coal is placed on the market, there seems little chance of doing away completely with the domestic coal fire. Of late years there has been a great increase in the use of gas and electricity in London, and the improvement produced thereby is very noticeable in the diminution of the severe fogs which used to occur regularly about November some twenty-five years ago. There is no doubt that this points the way to reform in the matter of domestic smoke; and every endeavour should be made to encourage the use of gas and electricity for cooking and heating, and at the same time to discourage the use of raw coal for the same purposes. English people are wedded to the ordinary open fire, and until a plentiful supply of cheap smokeless fuel is discovered and put on the market in sufficient quantities to replace coal, I do not think there is the slightest chance of clearing the atmosphere completely."

At Huddersfield, last week, Harvey Shaw, an unemployed youth, of Armitage Bridge, was put on probation for twelve months for breaking into the gas meter at his home, and stealing 15s.

TRADE NOTES.

The Practical Year Book and Diary.

From Messrs. W. G. Beaumont & Son, painters of gasholders and general structural work, of Priory Works, Bow, London, E. 3, we have received a copy of their Practical Year Book and Diary for 1925. Comprising a useful desk diary, the book contains much information of general interest.

Thomas Glover & Co.'s Meter Testing Apparatus.

Messrs. Thomas Glover & Co., Ltd., have secured the contract for the gas meter testing apparatus, comprising twelve holders, six tables, and all the necessary adjuncts, for the Gas Light & Coke Company. This follows on that firm's success at Birmingham, Belfast, Bristol, and Edinburgh, where in each case the contract for gas meter testing apparatus was secured by them.

Printers for Advertisers.

Hammond & Griffiths, Ltd., of 1, Quality Court, W.C. 2, of whose good services we often avail ourselves, specialize in artistic and high-quality setting-out and printing; and the preparation of catalogues, leaflets, show-cards, or advertising media could not be entrusted to better hands. Their New Year offering took the form of an excellent date-block for the desk; the reverse side of each leaf, as the latter is turned down on to the pedestal, providing space for notes and the calendars of three months. It is a gift of taste and utility.

Sands for Industrial Purposes.

An interesting booklet has been prepared by Mr. A. L. Curtis, Westmoor Laboratory, Chatteris, in which are described the various kinds of sand which he supplies, and the methods employed for marketing reliable products. Examination of "Curtis Tested Sands" begins at the quarry where, in conjunction with the owner or merchant, workings and strata are carefully inspected, samples accurately taken, and methods of washing, drying and screening diligently watched. Sampling from railway trucks is often resorted to, that a check may be kept as far as possible on the bulk. Such samples from the quarries and bulk are afterwards dried, weighed, sieved, and washed for physical and microscopical analysis. Chemical analysis, and elutriation, porosity, permeability, and refractory tests, are also made. Mr. Curtis supplies all kinds of clays and refractory materials, and also undertakes to advise users of these substances, as well as users of sand, on any technical or practical point which they may bring forward.

EXTENSIONS.

Extensions at Dewsbury.

The Dewsbury Town Council, subject to the approval of the Ministry of Health, have accepted the tender of Messrs. Gibbons Bros., Ltd., of Dudley, to supply and erect horizontal retorts and coal and coke handling plant, at £31,250.

Inquiry at Morecambe.

Mr. H. E. Byrne conducted an inquiry on the 6th inst. at the Town Hall, Morecambe, into an application by the Corporation for sanction to borrow £42,000 for reconstructing their gas-works. It transpired that work amounting to £6000 had been done in anticipation of the Ministry's sanction; the Town Clerk explaining they had power to spend money on reconstruction, and thought they could defray the cost, but had overspent their capital. Mr. A. W. Barratt (Gas Manager) said the scheme embodied modern plant, including coal and coke handling machinery. The existing works were practically worn out. When the reconstruction was completed there would be a saving of labour, and the output would be considerably increased.

A Holder for Blackburn.

The Blackburn Town Council have decided to obtain tenders for the erection of a new holder at the Greenbank Works, at an estimated cost of £45,000, and a new carburetted water gas plant, at an estimated cost of £15,000. Application is to be made to the Government for a grant-in-aid in respect of the scheme. The Council also decided to apply for sanction to borrow the necessary money to carry out the work.

Bakewell Gas Undertaking.—The accounts of the Bakewell gas undertaking reveal a loss on the past year's working of £164o. Included in the expenditure, however, is a sum of £2928 for legal costs, and if this is deducted, it leaves a gross profit of £1288, and a net profit of about £600.

Gas Deficit at Dewsbury.—At a meeting of the Dewsbury Town Council on Jan. 8, Alderman W. Naylor protested against the people of the Ravensthorpe district being involved in a decision to levy a rate of 3d. in the pound for six years in order to meet a deficit of £42,000 on the gas accounts. He said the Ravensthorpe people did not use Dewsbury Corporation gas and had nothing to do with the creation of the deficit. The Ravensthorpe ratepayers intend to appeal to the Ministry of Health.

Price of Gas in Preston Out-District.—At the Walton-le-Dale District Council meeting on the 5th inst., objection was raised to an application being made by Preston Gas Company, who are seeking powers to utilize land purchased by them in the Bamber Bridge locality for the erection of gas-works. The ground of the objection was that since 1865 the Company had differentiated in the price charged for gas. Walton were now paying 17d. per therm, against 16·4d. paid in Preston Borough, and the latter figure also applied to the suburban district of Fulwood. The opinion was expressed that the cost of the additional mains required to serve the Walton district had long since been paid off.

COLONIAL GAS ASSOCIATION, LTD.

Annual General Meeting.

The Thirty-Sixth Annual General Meeting of the Association was held at Collins House, Melbourne, on Oct. 8 last—Mr. P. C. HOLMES HUNT (the Chairman) presiding.

The ACTING SECRETARY (Mr. R. C. Shaw) read the notice convening the meeting, and the report and accounts were taken as read.

LOSSES BY DEATH.

The CHAIRMAN, on rising, said he desired in the first place, on behalf of his colleagues and the members of the London Board, to refer to the very great loss the Association had sustained since the last annual meeting by the lamented death of the late Chairman, Mr. Samuel Spencer, and also by the death of the late Sir John Taverner, K.C.M.G., who for two years previous to his decease had been a member of the Melbourne Board. The late Mr. Spencer had been, up to the time of his death in May last, a Director of the Association since its inception in 1888. For the space of 28 years, terminating in December, 1923, he had been Chairman. Owing to the fact that recently the head office was situated in London, and the annual meetings of the shareholders held there, the late Mr. Spencer was not personally known to many Australian shareholders. Those of them, however, who had had the privilege of coming in touch with Mr. Spencer appreciated the great part he played in developing the Association and assisting in its advance. His work for the Company was invaluable, while his wonted willingness to do all in his power to further the interests of the concern would be greatly missed by the members of the London Board and the shareholders in England. In 1923 he took a leading part in the arrangements necessary for the transfer of the head office from London to Melbourne, realizing thoroughly the necessity for the change. The Board desired to place on record their deep regret at the loss of so valuable a Director, whose personal qualities had endeared him to all his associates. The late Sir John Taverner, who was so well known in the public life of Victoria, joined the London Board of the Association in 1913. In 1919 Sir John revisited Melbourne, and when it became known that he had decided to remain there the Australian Directors were very pleased to welcome him to a seat on the then Local Board. Sir John's knowledge of the work of the Board in London proved very helpful to them in Melbourne, and the Directors deeply regretted his tragically sudden death, which deprived them of his valuable assistance and experience.

THE HEAD OFFICE.

This was the first annual meeting of shareholders held in Australia, although the thirty-sixth annual general meeting of the Company, and the Directors were pleased to be able to present another satisfactory report. The occasion marked an important epoch in the affairs of the Association. It had been evident to the members of the Board in Melbourne, and, indeed, to the Directorate in London, that a change in the centre of administration was essential in the general interests of the Company, and especially if the progress of the Association was to be maintained. Apart from the fact that the detailed management of the concern had necessarily always been carried on in Australia, the difficulty in raising capital for extensions had become more pressing than ever, and the payment during the years following the Great War of English income-tax on a much higher scale than before the war, accentuated this difficulty in Australia. The net result was that, although the Company for two years had been able to raise the dividend on the ordinary shares to 9 p.ct., yet the deduction on account of English income-tax brought the net return to the shareholders to about £7 12s. 6d. p.ct.—a rate at which it would be difficult to raise ordinary share capital in Australia. Consequently it was decided that the matter should be thoroughly discussed during his visit to London, in 1923, when he found the Board unanimously in favour of the suggested change; and the head office of the Company was definitely established in Melbourne as from Jan. 1, 1924. All dividends paid out of profits earned since that date to shareholders resident in Australia would, therefore, be free of any deduction on account of English income-tax. Apart from being a boon to shareholders, this gave the added advantage of putting the Association in a much better position in regard to raising capital in Australia, apart from the possibilities in England. The majority of the shareholders in the undertaking were resident in Great Britain, and the Board recognized the desirability of keeping the shareholders in London informed, as far as is practicable, of progress made. Steps had been taken to ensure this being done. Another result of the change in location of the head office was that they would be able to have their shares listed on the Melbourne Stock Exchange. This would be a great convenience to shareholders; but before it could be effected, alterations in the Articles of Association to comply with stock exchange rules were necessary.

ACCOUNTS FOR THE YEAR.

Despite the fact that in the earlier part of the financial year the outlook was by no means good, the result was satisfactory. A labour disturbance occurred at Newcastle in 1923, and all supplies of Maitland coal were stopped for several months, which forced them to obtain from Queensland and Victoria coal giving inferior yields of gas and residual products. The handling of larger quantities of coal entailed the employment of a great deal of extra labour; and as the carbonizing results obtained from the coal were at least one-third below the standard obtained from the Maitland coal, the cost of production increased considerably. In order to relieve the position, the price of gas was raised at the Melbourne Suburban Works by 1s. 9d. per 1000 c.ft. This increase, however, was only kept up for a period of three months, and, considering that a good supply of gas was maintained in all the areas served, the way in which the difficult period was surmounted was a matter for congratulation. The supply of Maitland coal ceased in April, 1923, and this cessation continued into August of the same year. They had, of course, stocks of Maitland coal on hand at the commencement of the trouble, which enabled them to carry on for some time, and it was not until towards the latter end of the financial year, which terminated on June 30, 1923, that the real pinch of the position was felt. When the strike ended they had stocks of inferior coal which had to be worked out, and consequently the difficult period he had referred to continued well into the first half of the financial year under review. This state of affairs was felt, of course, in their country works in Victoria, as well as in the Melbourne Suburban Works, but not so acutely, and the Directors therefore thought that the Company should bear the increased expenditure. The best insurance against the disruption of the business from the cessation of the supply of suitable coal lay in the maintenance of sufficient stocks of coal. This had always been the policy of the Directors, and it was apparent, from the experience of last year, that a stock of coal equal to many months' requirements was essential if the business was to be conducted without risk of serious inconvenience to both the public and the undertaking. At the same time, shareholders would appreciate that it was not always possible to obtain the full supplies of coal required. The operations for the year, including the net revenue received from the Williamstown Works, had resulted in a net profit, after providing for depreciation, amounting to £36,629. Turning to the revenue account, on the debit side, coal and purifying, &c., compared favourably with the last statement, taking into consideration the extra quantity of gas sold; and these remarks applied equally to repairs, maintenance, depreciation, &c. The works had been well supervised, and any repairs necessary had been dealt with, and it could be taken that the works were in good order and condition from the point of view of upkeep. In regard, however, to general administration expenses, these were markedly higher than the figures for the preceding year, due to higher Australian taxation and expenses of the transfer of operations from London to Australia. On the credit side the sales of gas, excluding the Williamstown profit, which was included under miscellaneous revenue, showed a satisfactory increase of approximately £10,000 in turnover, while the miscellaneous revenue was also an improvement on the previous year's showing. In the net revenue account, bank interest was high, as a heavy overdraft was carried throughout the year. The item income-tax represented deductions made from dividends, but not yet paid to the English Commissioners, together with an amount assessed, but not paid, in respect of corporation profits tax. The balance subject to dividend was within a few shillings of £30,000, being an increase of over £6762; and a dividend of 9 p.ct. per annum on the ordinary shares was recommended, after making the usual transfer to reserve. The dividend had thus also been earned on the new capital raised in England in 1923. It was unnecessary to traverse all the details in the balance sheet. The amount of the overdraft at June 30, 1924, was £12,216, against which there was cash at sundry other banks of £3152, so that the net liability to bankers at date was only £9064. The full proceeds of the debentures issued in June and July last, and referred to in the Directors' report, were of course not shown; but since June 30 the account with the Royal Bank became in credit. Included in the shares issued were 51,703 ordinary, allotted to the shareholders of the Williamstown Gas Company, Ltd.; 47 unallotted representing fractional interests of which the liquidator had not disposed at the date of the balance sheet. The assets called for little comment. Stocks had been carefully valued on conservative lines, and proper provision made for bad and doubtful debts. The sales of gas, excluding the Williamstown Works, showed an increase of 4·1 p.ct. over the corresponding figures of the previous year. They had also added over 1200 new consumers during the year. In regard to neither of these items had they brought into consideration the sales of gas or number of consumers taken over from the Williamstown Gas Company.

EXPANSION OF OPERATIONS.

As indicated in the Directors' report, they had effected an amalgamation with the Williamstown Gas Company, which dated from Jan. 1, 1923. The Williamstown Company had supplied gas in an area contiguous to that of their own Footscray undertaking. The amalgamation therefore gave promise for the future, though it would be necessary to expend a heavy sum of money to link-up the districts and modernize the works. It was intended to proceed at once with the laying of a high-pressure main from the Footscray Works to Spotswood, and thence on to the heart of Williamstown. It was the intention of the Directors to take all steps necessary to ensure a full and adequate supply to the various districts now served from their works in the western suburbs of Melbourne, and it was also intended to modernize the Footscray Works with the idea of concentrating manufacture there at as early a date as possible. The Board felt that there was a great possibility for expansion of the Company's operations, particularly around Melbourne, not only in the western suburbs, but also in the Box Hill and Oakleigh areas supplied by them. There was a population in all these districts approximating 80,000, and there were vacant areas available for development. Applications for extensions of mains were constantly receiving attention. It had to be remembered, however, that the works were situated either on the fringe of the metropolis of Melbourne or in country towns, and therefore necessarily had to supply gas in sparsely populated areas. In country towns, more frequently than not, development was extremely slow, and it must be admitted that the Company had supplied this public utility under these conditions often under great difficulties. The price of gas at most of their works compared well with smaller undertakings in other States. The aim of the Directors had been to give the public at all times a proper supply of gas on the best terms which circumstances would allow. Their policy was to give good service, realizing that this constituted the connecting-link between the public and the Company. This Association had been responsible to a great extent for the pioneer work in gas supply in many areas in Victoria, as well as in other States.

CAPITAL REQUIREMENTS.

The new holder at Footscray, capable of storing about 500,000 c.ft. of gas, was in course of erection, and it was hoped to have it completed before next winter. Other extensions were contemplated at

several of the works, and must be embarked upon at an early date. As a first step towards providing the necessary capital, the shareholders would be asked that afternoon to sanction an increase of £80,000 in the capital of the Association by the creation of 40,000 ordinary shares and 40,000 preference shares of £1 each. As the result of this increase, the unissued capital of the Association would stand at £79,427 in ordinary shares and £63,694 in preference shares. It was not proposed to issue the whole of this amount of £143,121 at once. The Board also recommended that the dividend on the preference shares now existent should be increased from 7 to 8 p.ct. as from July 1, 1924. This recommendation was the outcome of careful consideration by the Directors, and consultation with financial authorities conversant with the operations of the Association. Prevalent conditions suggested the wisdom of at least a substantial proportion of the next capital issue being in the form of preference shares, and it was obvious that they could not expect to issue preference shares carrying a dividend of 7 p.ct. They were advised that the rate of dividend should be 8 p.ct. There was another important point to bear in mind. During the Great War exceptional circumstances were created, and the impossibility of raising money for the pressing extensions required at the various stations, dictated a policy of careful reservation of cash resources. About one-third of the preference shares then issued were handed to shareholders in lieu of dividends; the remainder of this class of shares being taken-up voluntarily. Due regard had been had to these factors before making the recommendation, and it had been thought essential that any new preference shares issued should be made to rank *pari passu* with existing shares, at the dividend rate of 8 p.ct.

GAS LEGISLATION.

During 1923, and again in 1924, two successive Governments had considered the matter of gas supply in Victoria, and legislation had been introduced to control it. Without legislation, the Association had constantly endeavoured to supply a satisfactory product at a reasonable price. In fact, it was pleasing to note that the Select Committee appointed in 1923 by the Victorian Legislative Assembly to inquire into gas supply in the State favourably referred to the difficulties encountered, and the charges made, by the smaller Victorian gas companies. Now, however, the idea was current that any legislation that stopped short of price-fixing had not covered the whole ground. Logically, this should be not more so with gas than with any other commodity that might be termed a household necessity, unless the suppliers of that commodity received some special statutory privilege. Regulations as to quality, pressure, and purity of gas were equitable, and in the public interest. Safeguards which ensured that the public received a proper quantity and quality, and as conferred by the Weights and Measures Act and the Pure Foods Act, were necessary. Legislation analogous to these Acts would therefore be justified; but it should stop there in the case of undertakings which had no special rights granted by Act of Parliament. Price-fixing legislation in regard to gas undertakings that received no parliamentary concession must tend to injure these particular undertakings. It was important to point out to shareholders that, in the Gas Regulation Bill now before Parliament, provision was made to fix the price of gas sold by non-privileged undertakings. The Bill provided that the fixed price might be varied every three months, and that it was to be fixed by the Referees proposed to be appointed under the Bill, of whom one was to be "a person with a knowledge of finance and accountancy." The interpretation of what was "a reasonable return on capital," which the Bill purported to secure to gas undertakings was, at the best, liable to uncertainty, and would be practically in the hands of this particular member. The Board trusted, however, that wiser counsels would prevail before an attempt was made to make the Bill—as it stood—become law, especially as it was proposed at present to affect only four of the forty gas undertakings in the State. He desired to record the Directors' appreciation of the manner in which all the Works Managers, some of them situated far distant from Melbourne, had carried out their duties and looked after the interests of the Association during the year. All the Managers were endeavouring, as far as circumstances allowed, not only to look after the interests of the Association, but also to build-up the reputation of the undertaking among the consumers for good public service. He wished also to express appreciation of the work done by the head office staff. Unfortunately this work had been handicapped recently by the absence of the Acting Secretary (Mr. Eckersall), owing to serious illness, but the Directors hoped that his health would be restored before long. In the meantime, the secretarial duties had been ably carried out by Mr. Shaw. In conclusion, he moved the adoption of the report and balance sheet.

Mr. J. S. WEIR seconded the motion, which was agreed to.

DIVIDENDS AND RESERVE FUND.

The CHAIRMAN moved: "That out of the profits available for the dividend, a final dividend at the rate of 7 p.ct. per annum, less tax, be declared on the preference shares; that a dividend at the rate of 9 p.ct. per annum, less tax, be declared on the ordinary shares; and that £2000 be added to the reserve fund."

Mr. H. A. UNDERWOOD seconded the motion, which was carried.

Mr. H. A. Underwood was re-elected a Director, and the Auditors (Messrs. Sherlock and Daniell) were re-appointed.

INCREASE OF CAPITAL.

Moved by the CHAIRMAN, and seconded by Mr. WEIR, it was resolved: "That this meeting sanction an increase of the capital of the Company by the creation of 40,000 additional ordinary shares of £1 each, and by the creation of 40,000 additional preference shares of £1 each, conferring on the holders of such preference shares a preference dividend out of the profits of the Company in each year at the rate of 8 p.ct. per annum, and ranking, as regards payment of dividend, equally with the existing preference shares of the Company, and, as regards repayment of capital, equally with such last-mentioned preference shares, and in priority to the ordinary shares. That, as from July 1, 1924, the rate of dividend payable on the existing preference shares of the Company shall be 8 p.ct. per annum."

At subsequent extraordinary general meetings alterations in the Articles of Association were agreed to, having principally in view the listing of the shares on the Melbourne Stock Exchange.

NORTH-EAST COAST COAL TRADE.

From our Own Correspondent.

The market has made a somewhat disappointing start to the year, values in most cases having been barely maintained. The demand has shown no signs of expanding. Reports are circulating to the effect that more reparation coal is offering to France and Belgium than they can absorb, which naturally implies a larger quantity available for German competition with English coal in either market.

Durham unscreened bunkers were in somewhat variable demand, but, on the whole, fairly well maintained, and closed the week at about 19s. 6d. for best sorts. Coking was slack, and a poor market. Gas coals have hardly been in such keen demand, and prospects for the second half of the month are at present rather vague. Nominal quotations are maintained at recent levels—22s. to 22s. 6d. for Wear Specials, 21s. 6d. for best qualities, and 18s. to 18s. 6d. for others.

On the whole, it cannot be denied that the trend of the market has been discouraging. Nothing has happened to give rise to any hopes of improvement, and, in the absence of some new development, prospects remain decidedly poor.

COAL TRADE IN THE MIDLANDS.

From our Local Correspondent.

The New Year's trade is opening out encouragingly. There has been an improving demand for industrial fuel, attributable in part to the replenishing of stocks, but also in some measure to a general growth of consumption. Prospects of continued development in this direction are considered fair. Most of the pits are working full time. Slacks, though not formally advanced, are moving off on terms more favourable to the seller, as collieries are no longer under the necessity of making special concessions as a safeguard against accumulation of stocks. The stronger impulse has been felt in regard to nuts and all rough industrials. Best coal has not been so consistently called for of late as it was during the autumn and early winter. The rate of consumption has been proportionate to the open weather. Lower grades of domestic coal are likewise in ample supply. Reports from the pits indicate, however, that stocks have been kept well in hand, so that inclement conditions will be quickly felt by collieries.

Gas coal is being taken at an even pace. The fullness of reserves leaves little scope for the disposal of spot lots. Stocks of gas coke are stated to be abundant at some of the works, but the price is maintained.

Furnace coke is very firm. Some smelters have only been able to renew contracts at a substantial advance on the prices they paid in the last quarter. A cold blast-furnace has been re-started in South Staffordshire, after three or four months' inaction.

YORKSHIRE AND LANCASHIRE COAL TRADE.

From our Local Correspondent.

Gas coals in Yorkshire and Lancashire are moving slowly, probably on account of the lack of export orders. Buyers in the open market are able to obtain their supplies at figures below contract rates.

The industrial outlook is rather vague, and this reacts upon the fuel consumption. For forward contract, collieries are inclined to ask increased prices, but for prompt deliveries prices are discounted.

The house coal trade is below the normal for this time of the year; and although a change in weather conditions may increase the demand, there will be no alteration in price.

There is no apparent improvement in the outlook for shipment through the Humber ports, the Scandinavian countries evidently being well satisfied with their purchases from Germany. The only fuel that has appreciated in value is furnace coke, and gas coke has depreciated to some extent.

In the Lancashire market there is a slightly better feeling. The demand for good slack for the cotton mills is now fairly active, and prices are unchanged. Shipping remains very poor.

Prices at Hull at the week-end were: Bunkers—Yorks., Derby, and Notts. large screened steam, f.o.b. Humber ports, 17s. 6d. to 20s. per ton. Cargo for export f.o.b. usual shipping ports—Best Yorks. hards, Association, 22s. 6d. to 22s. 9d.; Derby best hards, 22s. 6d. to 23s. 1½d.; West Yorks. Hartleys, 18s. 6d. to 22s.; South Yorks. washed doubles, 21s. 9d. to 23s.; ditto singles, 21s. 9d. to 22s. 6d.; dry doubles, 16s. to 17s.; South Yorks. washed smalls, 16s. 6d. to 17s. 3d.; Derby slack, 1 in., 11s. 6d. to 12s. 6d.; South Yorks. rough slack, 11s. 6d. to 12s.; gas coke, 24s. to 27s. 6d.; foundry furnace coke, 23s. 9d. to 24s.; washed smithy peas, 23s. 6d. to 26s.; washed steam thirds, 20s. 6d.; and South Yorks. washed trebles, 23s. to 23s. 6d. per ton.

Calendars for 1925.—Since our last week's acknowledgment of diaries and calendars for 1925 received, we have had a beautiful oleograph picture of a lady, with calendar appended, from Mr. J. Wilfrid Drake, of Messrs. Drakes, Ltd., of Halifax. The Koppers Coke-Oven Company, Ltd., have also forwarded a calendar, on which is a view of their patent taper oven. In this case, engagements may be noted on the date slips in advance, and they automatically come into sight on the required dates.

CURRENT SALES OF GAS PRODUCTS.

The London Market for Tar, Tar Products, and Sulphate.

LONDON, *Jan.* 12.

In pitch, little new business is reported, and the price remains unaltered at from 50s. to 52s. 6d. per ton. Large shipments are being made of quantities previously sold, and makers are not displaying any anxiety to sell.

Creosote remains steady at about 7d. to 7¼d. per gallon for early shipment, for which position supplies are scarce.

Solvent naphtha is firm at about 1s. 8d. per gallon for 95-160 quality.

Pure benzole is scarce at about 1s. 10d. to 1s. 11d. per gallon; pure toluole being steady at about the same figure.

Tar Products in the Provinces.

Jan. 12.

There is little or no business doing in tar products, and pitch remains quiet. Continental buyers have not yet come into the market, and may not do so until the end of the month. Producers, however, do not appear to be in any anxiety to sell; and although nominally the market price is lower, there does not seem to be any actual business of importance transacted.

Creosote is still very firm, and sales are reported at maker's works at from 6¼d. to 6¾d. per gallon.

Benzole remains scarce, and high prices are still paid.

The demand for solvent naphtha continues, and contracts have been let recently for six or twelve months at top figures.

Naphthalene, anthracene, and cresylic are still neglected; but there has been a little improvement in carbolic, and an advance has been paid for prompt delivery.

The average values for gas-works products during last week were: Gas-works coal tar, 34s. 6d. to 39s. 6d. Pitch, East Coast, 47s. 6d. to 50s. f.o.b. West Coast—Manchester, 44s. to 45s.; Liverpool, 45s. 6d. to 46s. 6d.; Clyde, 47s. 6d. to 48s. 6d. Benzole, 90 p.ct., North, 1s. 7¼d. to 1s. 8¼d.; crude 65 p.ct. at 120° C., 9¼d. to 10¼d., naked at makers' works; 50-90 p.ct. naked, North, 1s. 2d. to 1s. 3d. Toluole, naked, North, 1s. 7¼d. to 1s. 8¼d., nominal. Coal-tar crude naphtha in bulk, North, 7¼d. to 8d. Solvent naphtha, naked, North, 1s. 5d. to 1s. 6d. Heavy naphtha, North, 1s. 1d. to 1s. 2d. Creosote, in bulk, North, liquid, 6¼d. to 6¾d.; salty, 6¼d. to 6¾d.; Scotland, 6¾d. to 6¾d. Heavy oils, in bulk, North, 6¾d. to 7d. Carbolic acid, 1s. 9d. to 1s. 10d. prompt. Naphthalene, £12 to £14; salts, £4 to £5 10s., bags included. Anthracene, "A" quality, 3d. per minimum 40 p.ct., purely nominal; "B" unsaleable.

Manchester District Tar Prices.

The average price realized for the sale of tar in the Manchester district, according to the sliding-scale, for the month of November was £2 6s. 10·12d. per ton.

Gas for Picture Palace at Brixton.

After many experiments, the management of the Brixton Palladium have decided to adopt gas for the outside lighting of their kinema. Hitherto the large frontage of this house has been lighted by five Omega lamps each of 500-watt, 220-volts, but the decision has been made to replace these electric lights with high-pressure gas lamps. Mr. Stewart, the Manager, estimates that the change over will result in a direct economy and will also relieve his electric plant from all dangers of a possible overload. The installation is being made by the South Metropolitan Gas Company, who have assumed the responsibility for its upkeep.

Gas Showrooms at Doncaster.—The Doncaster Council have resolved to urge the Gas Committee to apply to the Estates Committee to reserve any suitable Corporation premises which may become available, with a view to the establishment of gas showrooms.

Clitheroe Gas Accounts.—The annual statement of accounts of the Clitheroe Borough Treasurer shows, in respect of the gas-works, that there are annuities still in existence amounting to £940. These will cost £26,865 to redeem. During last year £3394 was spent in improving the works, which are now valued at £81,112. The gross profit for 1923-24 was £3488, and a net profit of £1319 was transferred to depreciation account, which now amounts to £5523.

Loughborough's Public Lighting.—The question of the public lighting of the town came up for consideration at the last meeting of the Loughborough Town Council, when comparisons were drawn to the advantage of the use of gas as an illuminant. The Lighting Sub-Committee reported that they considered, excepting the high-powered electric standards in the more prominent places, incandescent gas lamps were infinitely superior to the ordinary electric lamps. If the cost was not held to be prohibitive, they expressed the view that the conversion of the whole of the gas lamps to automatic control would be of great advantage. Mr. Spriggs expressed his disagreement with that part of the Committee's report which referred to the town as being "fairly well lighted." There were, he said, still quite a lot of badly illuminated streets. He suggested that they should revert to the standard of lighting which prevailed before the war. That gas lamps were better than electric had been proved in many other towns. His opinion as to automatic control was that it was not an entire success, and he believed the cost of upkeep was considerable. He moved the reference back to the Committee of the report, there being many streets still requiring attention. It was finally agreed to accept the report, leaving it to the Committee to give further consideration to the points which had been raised.

Industry and the Teacher.

The problem of the training of young people for industrial and commercial life was discussed at a recent meeting of the Association for Education in Industry and Commerce. Sir Arthur Duckham, who opened a discussion on "Industry and the Teacher," said the main point industrialists had before them was to make profits; and he thought the best way to do this was to follow the golden rule which was the foundation of all good, sound business. In the work of educating boys for industry, teachers must get into touch with industry, and they should understand what it meant and what the industrial life was. In the great industries of the country the boy was taken on as very raw material. If he came along with B.Sc. at the end of his name, they usually gave him less wages. Boys of that sort were always looked upon with suspicion. Many industrialists did not think much of education because they found that boys or girls entering business did not appreciate what they were there for. The economics of industry ought to be taught in schools. Pupils should be taught what it meant to go into industry and how to get on—by doing a little more than was expected of them. Employees ought not to have the feeling that they were working for something materialistic. It was necessary to get humanity from top to bottom of industry, and to get that they must have a feeling of service throughout.

Bristol Gas Company.—A study of some of the figures relating to the manufacture of gas by the Company is most encouraging. In 1914 the make was 3090 million c.ft. In 1922 it was 3565 millions, an increase of 3·39 p.ct. on 1921. In 1923 there was an increase of 2·94 p.ct. on the figures for 1922; while in 1924 the gas made—3835 million c.ft.—showed an increase of 4·49 p.ct. on the 1923 make of 3670 millions.

Loughborough Gas Profits.—A report recently presented in relation to the financial results of the past six months' working of the Loughborough gas undertaking shows a profit of £4010. In the period under review, the manufacture of gas entailed an expenditure of £12,985; the cost of distribution being £1183, and of management £1193—making with other items a total outlay of £16,330. Receipts included £13,767 from the sale of gas, £4627 from residual products, and £1376 from slot meters—the total revenues being £20,341.

Warrington Gas Profits.—The report of the Auditor on the Warrington Corporation gas accounts states that the past financial year's trading resulted in a gross profit of £27,777, a reduction of £6901 on the previous year's working. After making the required sinking fund provision, charging the interest due on annuities, and taking into account sundry items of income and charge, the net profit of £11,538 was carried to the appropriation account. The net profit in 1922-23 was £17,447. From the appropriation account a sum of £5330 was transferred in aid of rates, and £11,885 was employed in special extinction of loan debt; the reserve fund having been made-up to the required maximum. The balance carried forward was £19,870.

Satisfactory Results at Chesterfield.—The Chesterfield Gas-Works show a gross profit for the past year of £19,124, with a net profit of £570; and there have been accumulated profits in reserve of £32,406. The Chairman of the Gas Committee (Alderman Clark), referring to the position of the concern at a meeting of the Town Council, said new retorts had just been installed in connection with a scheme involving considerable expenditure. This new plant was now being utilized, and they were hoping for very good results. In a return from 243 gas undertakings in the country there were only 18 who were selling gas at a lower price than at Chesterfield. This showed how economically the department was being worked.

A Competition at Barnoldswick.—The Barnoldswick (Yorks.) Gas Committee initiated a novel shop window display competition for the Christmas period, giving a gas fire for the best gas lighted shop window among members of the Barnoldswick Tradesmens' Association. The competition was not open to shopkeepers outside that body. The judges were Mr. J. H. Woodward (Gas Engineer to the Skipton District Council) and Mr. H. W. Kay (Gas Engineer at Earby). They awarded the fire to Mr. J. Whittaker, a jeweller, of Rainhall Road, and highly commended thirteen other shopkeepers. Further, they expressed keen appreciation of the excellence of the gas lighting in the competition, and regretted there were not more prizes available.

The Milnthorpe Storm Damage.—It is reported that the damage at the Milnthorpe (Westmorland) Gas-Works, due to a chimney being struck by lightning, and falling on the retort house, is more serious than was at first supposed. The clearing away of the debris has revealed other injuries to the plant. The retort house is practically in ruins, together with much of the machinery and connections; the engine house is roofless; the gas scrubber is broken; and there are several holes in the gasholder. An emergency gang from Messrs. Drakes, Ltd., of Halifax, is on the job, aiming to restore sufficient plant to renew the town's gas supply to some extent, at any rate, within about ten days. The buildings and more permanent repairs and renewals will then be attended to.

The Directors of the European Gas Company, Ltd., have decided to pay, on the 31st inst., an interim dividend of 4s. per share, free of income tax.

Last Friday the pavement in Reddenhill Road, Torquay, was blown up in two places, causing much alarm, though nobody was injured. The explosion was caused by escaping gas getting into the conduit which conveys the telegraph cable. The explosion lifted two manholes over the inspection boxes and smashed the ironwork.

STOCK MARKET REPORT.

THE Stock Markets opened cautiously last week, but speedily recovered the previous optimism, all markets benefiting thereby. The tenders for the 3½ p.ct. Conversion Loan came up to expectation, and tenders for nearly £60,000,000 were accepted. The average price obtained was practically £77 11s.; but it would be interesting to know how much was applied for by Government Departments. While gilt-edged and other first-class stocks received support, most of the transactions were in commercial and industrial shares. Chartereds were particularly in demand; the 15s. shares being quoted on Friday at an average price of 22s. 6d. This is the highest point reached since 1920; and there are rumours that there is more behind the movement than the mere question of higher dividends. Substantial advances occurred in British Aluminium on reports of an excellent trading year, the shares rising from 29s. 9d. to 34s. 3d. on the week.

A study of the Gas Light and Coke Company's Bill reveals the fact that the Company are applying for powers to create £433,333 3 p.ct. consolidated debenture stock for the purpose of converting the 10 p.ct. Bonds of the Company. It will be observed that the South Metropolitan 5 p.ct. Redeemable Preference stock has disappeared from our Table, as the stock has now been paid off by the Company. There was only one transaction recorded in each of the Brentford stocks at the price of 113, or 6 points below the highest price reached on the amalgamation rumours. The quotation of the Continental Union stock improved 5 points, to 40-45; but Uxbridge (Maidenhead) stock on the other hand dropped 7 points, to 93-98. Bristol 5 p.ct. maximum rose 2½ points on the Bristol Exchange, which was doubtless due to the proximity of the dividend distribution. Chester 5 p.ct. rose 5 points on the Liverpool Exchange to 91-96, which more fairly represents the value of the stock.

Issue.	Share.	When ex-Dividend.	Dividends. Prev. Hf.Yr.	Dividends. Last Hf. Yr.	NAME.	Quotations. Jan. 9.	Rise + or Fall − on Week.	Transactions Lowest and Highest Prices.
£			% p.a.	% p.a.				
171,978	Stk.	Aug. 14	5	5	Aldershot 5 p.c. max. C.	80—83	..	..
235,492	,,	,,	4	4	Do. 4 p.c. Pref.	72—77	..	73½—74
1,551,868	,,	Sept. 22	6	6½	Alliance & Dublin Ord.	64—69	..	65
374,000	,,	Jan. 8	4	4	Do. 4 p.c. Deb.	61—66*	−2	..
300,000	5	Oct. 23	8	8	Bombay, Ltd.	5—5⅛	..	5⅛
100,000	10	Aug. 14	8½	8½	Bournemouth 5 p.c.	12½—13½	..	..
435,050	10	,,	7	7	Do. B 7 p.c..	12½—13	..	12⅝—12¾
150,000	10	,,	6	6	Do. Pref. 6 p.c..	10⅝—11⅝	..	..
50,000	Stk.	Jan. 8	3	3	Do. 3 p.c. Deb..	56—59*	−1	..
162,025	,,	,,	4	4	Do. 4 p.c. Deb..	76—79*	−1	..
992,045	,,	July 10	6 1/16	6 1/16	Brentford A Con.	112—115	..	113
990,500	,,	,,	6½	6½	Do. B New	112—115	..¾	113
76,000	,,	,,	5	5	Do. 5 p.c. Pref.	89—94	..	..
306,690	,,	Dec. 18	4	4	Do. 4 p.c. Deb.	75—80	..	..
181,337	,,	,,	—	6	Do. 6 p.c. Rich. Red. Deb.	100—105	..	..
214,740	,,	Aug. 28	11½	11½	Brighton & Hove Orig.	170—175	..	..
244,200	,,	,,	8½	8½	Do. A Ord.	125—128	..	..
1,287,500	,,	July 24	5	5	Bristol 5 p.c. max..	95—96a	+2½	..
855,000	,,	Sept. 25	7	8	British Ord.	115—120	..	117—118
100,000	,,	Dec. 18	7	7	Do. 7 p.c. Pref..	123—128	..	..
120,000	,,	,,	4	4	Do. 4 p.c. Red. Deb.	72—77	..	..
100,000	10	Dec. 18	8	6	Cape Town, Ltd.	6¾—7¼	..	..
100,000	10	Nov. 6	4½	4½	Do. 4½ p.c. Pref..	6—7	..	..
150,000	Stk.	Dec. 18	4½	4½	Do. 4½ p.c. Deb..	71—76	..	..
626,860	,,	July 24	6	6	Cardiff Con. Ord.	97—100	..	..
237,860	,,	Jan. 8	7¼	7¼	Do. 7¼ p.c. Red. Deb..	103—106*	..	..
157,150	,,	Aug. 14	6⅜	5	Chester 5 p.c. Ord..	91—96b	+5	..
1,513,280	,,	July 24	6	6	Commercial 4 p.c. Cap.	94—97	..	96
560,000	,,	,,	6	6	Do. 3½ p.c. Cap.	94—97	..	94½
475,000	,,	Dec. 18	3	3	Do. 3 p.c. Deb.	57—60	..	..
800,000	,,	14 Jan. 15	—	—	Continental Union, Ltd.	40—45	+5	38—44
200,000	,,	Dec. 18	7	7	Do. 7 p.c. Pref.	88—92	+1½	91
660,000	,,	Aug. 28	6½	6½	Croydon sliding scale	102—105	..	105
284,975	,,	,,	5	5	Do. max. div.	84—87	..	..
492,270	,,	Aug. 28	9	6	Derby Con.	107—110c	..	..
55,000	,,	Jan. 8	4	4	Do. Deb.	74—76c*	..	..
1,002,180	10	July 24	2	6	European, Ltd.	8¼—9¼	+½	8 1/16—8½
16,503,045	Stk.	Aug. 14	5⅜	5⅜	Gas Light & Coke 4 p.c. Ord.	95—97	..	95½—96½
2,600,000	,,	,,	3½	3½	Do. 3½ p.c. max.	62—65	..	63½—65
4,062,235	,,	,,	4	4	Do. 4 p.c. Con. Pref.	79—81	..	80½—80⅝
4,761,930	,,	Dec. 18	3	3	Do. 3 p.c. Con. Deb.	59—62	..	61—61½
130,000	,,	—	10	10	Do. 10 p.c. Bonds	..	..	..
42,000	,,	—	7½	7½	Do. 7½ p.c. Ilford Deb.	..	..	..
82,500	,,	Sept. 11	6½	6½	Hastings & St. L. 5 p.c. Conv.	95—100	..	..
258,740	,,	,,	5½	5½	Do. 3½ p.c. Conv.	75—80	..	..
70,000	10	Sept. 25	10	10	Hongkong & China, Ltd.	16—17	..	..
86,600	Stk.	Aug. 14	10	10	Hornsey 7 p.c.	138—143	..	..
1,976,000	,,	Nov. 20	30	10	Imperial Continental Cap.	175—180	..	178—179½
263,950	,,	Aug. 14	3½	3½	Do. 3½ p.c. Red. Deb.	70—73	..	..
235,242	,,	Aug. 14	6½	6½	Lea Bridge 5 p.c. Ord..	97—102	..	..
2,127,340	,,	Aug. 14	5½	5½	Liverpool 5 p.c. Ord.	93½—94b	−½	94
600,000	,,	Sept. 25	7	7	Do. 7 p.c. Red. Pref.	107—110b	..	..
165,736	,,	Aug. 28	8	9	Maidstone 5 p.c. Cap.	125—135	..	127½
63,480	,,	Dec. 18	3	3	Do. 3 p.c. Deb.	54—59	..	..
75,000	5	Dec. 4	7	5	Malta & Mediterranean	3½—3¾	+⅛	..
341,920	Stk.	Nov. 20	4	4	Montevideo, Ltd.	60—65	..	63—64
1,875,892	,,	July 24	5½	5	Newcastle & Gateshead Con.	84—84½d	..	83—83½
250,166	,,	,,	4	4	Do. 4 p.c. Pref..	74—75d	..	..
529,705	,,	Dec. 18	3½	3½	Do. 3½ p.c. Deb.	68—69*d	..	..
15,000	10	Aug. 28	11	11	North Middlesex 10 p.c.	16—17	..	..
75,940	10	,,	7 7/10	7 7/10	Do. 7 p.c.	11½—11¾	..	..
300,000	Stk.	Dec. 4	7	9	Oriental, Ltd.	100—105	..	..
138,120	,,	Jan. 8	7⅛	7⅛	Plym'th & Ston'house 5 p.c.	109—114*	−3	..
60,000	50	Aug. 28	13	13	Portsea Island B	99—102	..	104½—104¾
100,000	50	,,	12	12	Do. C	95—100	..	99
2,289,909	1	—	—	—	Primitiva Ord.	9/—10/-	+ −/6	9/1½—9/9
311,100	100	Dec. 1	4	4	Do. 4 p.c. Red. Deb..	76—79	..	..
600,000	Stk.	July 24	4	4	Do. 4 p.c. Red. Deb. 1911	63—65	..	63½—64
220,335	,,	Dec. 18	4	4	Do. B. Aires 4 p.c. Rd. Db.	65—67	..	..
321,670	,,	,,	4	4	Do. R'r F'te 4 p.c. Rd. Db.	65—67	..	..
150,000	10	Sept. 25	6	6	San Paulo 6 p.c. Pref.	7½—7¾	..	..
125,000	50	Jan. 2	5	5	Do. 5 p.c. Red. Deb.	40—42	..	..
270,000	Stk.	Aug. 28	5/8/4	5½	Sheffield A	104—106e	..	105
419,968	,,	,,	5/8/4	5½	Do. B	104—106e	..	..
1,047,000	,,	,,	5/8/4	5½	Do. C	104—106e	..	..
90,000	10	Oct. 23	8	6	South African	7—9	..	..
6,609,895	Stk.	Aug 14	6½	5	South Met. Ord.	100—102	..	100¾—102
1,895,445	,,	Jan. 8	3	3	Do. 3 p.c. Deb.	55—62*	−1	62
734,000	,,	Sept. 11	6½	6½	Do. 6½ p.c. Red. Deb.	104—106	..	105
91,500	,,	Aug. 28	8½	8½	South Shields Con.	137—139d	..	..
1,087,795	,,	Aug. 14	6½	6½	South Suburban Ord. 5 p.c.	107—112	..	109½—110
368,837	,,	Dec. 18	5	5	Do. 5 p.c. Deb.	94—99	..	..
647,740	,,	Nov. 6	5	5	South'mpt'n Ord. 5 p.c. max.	83—86	..	..
121,275	,,	Dec. 18	4	4	Do. 4 p.c. Deb.	72—77	..	..
250,000	,,	Aug. 28	7	7	Swansea 7 p.c. Red. Pref.	102—104	..	..
200,000	,,	Dec. 18	6½	6½	Do. 6½ p.c. Red. Deb.	102—104	..	103—103½
120,000	,,	July 24	8	8	Tottenham District A 5 p.c.	119—122	..	122
882,275	,,	,,	6½	6½	Do. B 3½ p.c.	102—105	..	103½
181,255	,,	Dec. 18	4	4	Do. 4 p.c. Deb.	75—79	..	..
258,251	,,	Aug. 28	7/14/4	5	Tynemouth Con. and New Uxbridge, Maidenhead, & Wycombe 5 p.c..	84—86d	..	..
187,294	,,	Aug. 28	6½	6½	Do. 5 p.c. pref.	102—107	..	..
68,330	,,	Aug. 28	—	5	Do. 5 p.c. Maidenh'd	95—100	..	..
91,800	,,	—	—	—	Wandsworth, Wimbledon, and Epsom—	93—98	−7	94
30,000	,,	July 10	9½	9½	Wandsworth A 5 p.c.	140—145	..	..
255,636	,,	,,	7½	7½	Do. B 3½ p.c.	120—125	..	125
108,075	,,	,,	6/7/9	6/9/6	Do. C	102—107	..	..
240,865	,,	,,	6/7/9	6/9/6	New Ordinary	..	..	103
352,000	,,	,,	7½	7½	Wimbledon 5 p.c.	116—121	..	..
98,000	,,	,,	7½	7½	Epsom 5 p.c..	122—127	..	..
48,416	,,	Dec. 18	3	3	3 p.c. Deb.	57—60	..	..

Quotations at:—*a.*—Bristol, *b.*—Liverpool. *c.*—Nottingham. *d.*—Newcastle. *e.*—Sheffield. * Ex. div.

The following transactions were recorded during the week: On Monday, Alliance and Dublin 65, Continental Union 38, 38¼, European 8 1/16, Gas Light and Coke 95⅛, 95⅜, 96, 96 1/16, 96⅛, 96¼, 96⅜, 96½, 96¾, 3½ p.ct. maximum 63½, 3 p.ct. debenture 61½ *ex* div., Imperial Continental 179½, Maidstone 5 p.ct. 127½, Newcastle 3½ p.ct. 83½, Primitiva 9s., 9s. 1½d., 9s. 3d., South Metropolitan 100¾, 101¼, 101⅜, 101½, 6½ p.ct. debenture 105, South Suburban 5 p.ct. 109½, 110, Swansea 6½ p.ct. debenture 103 *ex* div., Tottenham "B" 103½, Tuscan 28s., 6 p.ct. debenture 68, Wandsworth "B" 125. Supplementary prices, Bath 5 p.ct. debenture 98, Wandsworth 3½ p.ct. 103.

On Tuesday, Aldershot 4 p.ct. preference 73½, 74, Bombay 5⅛, Brentford "A" 113, "B" 113, Continental Union 38⅜, 40, Gas Light and Coke 95⅜, 96, 96⅛, 96¼, 3½ p.ct. maximum 64, 65, 4 p.ct. preference 80¼, 3 p.ct. debenture 61 *ex* div., Imperial Continental 178, 179⅜, Newcastle 3½ p.ct. 83, 83½, Primitiva 9s. 1½d., South Metropolitan 3 p.ct. debenture 62, Swansea 6½ p.ct. debenture 103½ *ex* div., Tottenham "A" 122. Supplementary prices, Aldershot 4 p.ct. debenture 76, Bahai Blanca "B" 4d., Brentford 6 p.ct. Mortgages 98½.

On Wednesday, Continental Union 39⅝, Croydon sliding-scale 105, European 8 1/16, 8 3/32, 8⅛, Gas Light and Coke 96, 96⅛, 3½ p.ct. maximum 64, Imperial Continental 178½, Montevideo 63, Primitiva 9s. 1½d., 9s. 6d., South Metropolitan 100¾, 101¼, 101½. Supplementary prices, Bahia Blanca "B" 5s., Gt. Yarmouth quarter shares of £7½ (8⅛ p.ct. max.) 8⅛, 8¼, new shares (7½ p.ct. max.) 29½, 29¾, Hornsey 4 p.ct. debenture 75½.

On Thursday, Commercial 4 p.ct. 96, Continental Union 40½, 42½, 44, 7 p.ct. preference 91, Gas Light and Coke 95⅞, 96, 96¼, 96⅜, 96½, 4 p.ct. preference 80¾, Imperial Continental 178½, 179½, Montevideo 64, Portsea Island "A" 111½, 112, "B" 104½, 104¾, "C" 99, Primitiva 9s. 3d., 9s. 6d., 9s. 7½d., 4 p.ct. debenture 1911 63½, 64, South Metropolitan 100¾, Uxbridge Maidenhead Wycombe and District 5 p.ct. Maidenhead 94. Supplementary prices, Brighton and Hove 6 p.ct. "B" preference 107, Portsea Island 4 p.ct. debenture 76¼, 76½.

On Friday, Bournemouth "B" 12⅝, 12¾, British 117, 118, Commercial 3½ p.ct. 94⅜, Continental Union 40¾, 40⅞, 42, Gas Light and Coke 96⅛, 96⅜, 96½, 96⅝, 96¾, Imperial Continental 179, 179½, Primitiva 9s. 3d., 9s. 8¼d., 9s. 9d., South Metropolitan 101½, 101⅝, 102, 6½ p.ct. debenture 105. Supplementary prices, Brighton and Hove 6 p.ct. "B" preference 108½, Standard preferred 50⅝.

In the Foreign Exchange market Sterling on New York was again prominent, and another record was established on Friday at 4.79⅜, finally closing at 4.79. The substantial appreciation caused rates generally to move in favour of this country. The Paris rate finished at 89.32½, Belgian francs at 96.05, and Italian lire at 114.35.

The announcement of the average rate—£3 14s. 11·29d. p.ct.—at which Treasury Bills were allotted, had little effect on market quotations.

Silver was firm on Indian buying, and the price rose to 32 3/16d. per oz. Gold was lower at 87s. 2d. per oz.

The Bank rate is 4 p.ct., to which it was raised from 3 p.ct. on July 5, 1923. Bankers' deposit rates are 2 p.ct. The deposit rates of the discount houses are 2 p.ct. at call and 2½ p.ct. at notice